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Cullinane in control

Replaces Chapman as Cullinet boss, sets profit goal

BY NELL MARGOLIS
CW STAFF

WESTWOOD, Mass. — With a revived product plan in place but profits still elusive, Cullinet Software, Inc. reinstalled founder John J. Cullinane as chairman last week. The move was part of a shake-up of top staff triggered by the departure of David L. Chapman, the executive Cullinane himself had charged with turning the company around.

The changes came less than a week before the slated April 5 debut of the IDMS/SQL data base management system, the flagship product in Cullinet's assault on the Digital Equipment Corp. third-party market and key among the new entries in-

tended to restore the company to profitability.

The data base and attendant tools are already garnering a favorable reaction from early users and market analysts. In the past several weeks, however, Cullinet executives have confirmed that the prospects of black ink in the fourth quarter of fiscal 1988, which ends April 30, are borderline. The company has not reported a profitable quarter since fiscal 1986.

"Cullinet has done some truly outstanding things over the past couple of years, and we've made a lot of money," Cullinane said. "Now it's time to focus on the bottom line. This is a case of fine-tuning."

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REINSTATED



John J. Cullinane

RESIGNED



David L. Chapman

Users say PC promises wearing thin

BY DOUGLAS BARNEY
CW STAFF

In February, Lotus Development Corp. President Jim Manzi surprised an early morning crowd at the PC Forum conference by announcing a radical work group computing software product called Notes. Manzi provided few specifics about the product's design and named a vague shipment date that was more than a year away.

But the Lotus executive had the presence of mind to bring color photographs of a prototype Notes screen for attending reporters.

At a New York press conference a month later, Ashton-Tate Corp. outlined plans to resurrect its flagging fortunes in the data base management system market by introducing a new version of its Dbase product line, due in July.

But the alpha-test version of Dbase demonstrated at the event was so shaky that it crashed under the weight of company Chairman Ed Esber's keystrokes.

And just last week, Lotus added to its industry-leading list of "vaporware" — or products that have been announced but not delivered — by announcing

HP to widen Spectrum; rollout pace quickens

BY JAMES A. MARTIN
CW STAFF

Hewlett-Packard Co. is expected this week to unveil a range of systems, including three additions to its Spectrum series, two RISC-based engineering CPUs and two extensions of its Micro 3000 line.

Sources close to the company said it will announce the HP 3000 Model 955, a 9 million instruction per second, reduced instruction set computing system that will extend the Spectrum's high end beyond the current 7-MIPS limit of the Model 950 superminicomputer.

In an effort to further flesh out its RISC offerings to the commercial marketplace, HP reportedly will also introduce the 5-MIPS Model 935 and the 3-MIPS Model 925.

HP plans to position the new Spectrum systems as upgrades to the existing 930 and 950 models, which were formally announced in February 1986 but subsequently delayed for more than a year because of software I/O bugs.

No longer top pick

"The 930 and the 950 will quickly fade as the choice machines for HP customers," predicted Adam Cuhney, a technology analyst

The bottom line

Almost half of Hewlett-Packard's 1987 revenue from computer products was generated by the HP 3000

Product	Revenue (in millions)
IBM-compatible PCs	\$400 to 600
PC peripherals	\$750
Engineering workstations	\$500
CAE* systems	\$100
Multiuser and mid-size Unix systems	\$300
HP 3000s	\$2B

* Computer-aided engineering
INFORMATION PROVIDED BY ROBERTSON,
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CW CHART

with Kidder, Peabody & Co. in San Francisco. HP often upgrades systems every two years, he added. "The 930 and 950 were announced two years ago, so the timing is perfect."

Continued on page 8

System bugs breed \$635M tax oversight

BY J. A. SAVAGE
CW STAFF

SACRAMENTO, Calif. — Bugs in a new mainframe-based tax accounting system caused the state of California to fail to collect \$635 million in business taxes, the California Auditor General charged late last month.

But the Employment Development Department, the second largest tax collector in the country after the Internal Revenue Service, claimed to have resolved the problem by last Friday and mailed bills to the employers affected by the snafu.

The bugs were largely a result of erroneous data that existed in the department's original files at the time the conversion started in 1980, according to the EDD. The changeover was com-

Continued on page 4

Blueprint, which the firm calls a data access architecture. Do not look for the Blueprint vapor to precipitate until the end of this year, when Lotus's 1-2-3 Release 3 ships.

Such tactics are raising serious questions about the manner in which PC companies create, and sometimes destroy, users' expectations in pursuit of a marketing edge; they have also created an increasingly uneasy user community.

"I do no planning based on product announcements," said Art Skopec, senior PC analyst at Memorial Sloan-Kettering Cancer Center in New York.

Blueprint, Notes and Dbase IV are just symptoms of a fast-spreading marketing technique in the personal computer industry.

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"I do no planning based on product announcements."

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MEMORIAL
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NEWS

Brophy shifts gears

Moves from MIS to benefits post at Travelers

BY JAMES CONNOLLY
CW STAFF

HARTFORD, Conn. — One of the best-known MIS executives in the U.S., Joseph Brophy of The Travelers Corp., is shifting from information systems to the general administration side of the company.

Brophy, senior vice-president and chief of information systems at the Hartford-based insurance company [CW, March 7], is taking on an assignment as senior vice-president for employee benefits, according to a Travelers spokeswoman.

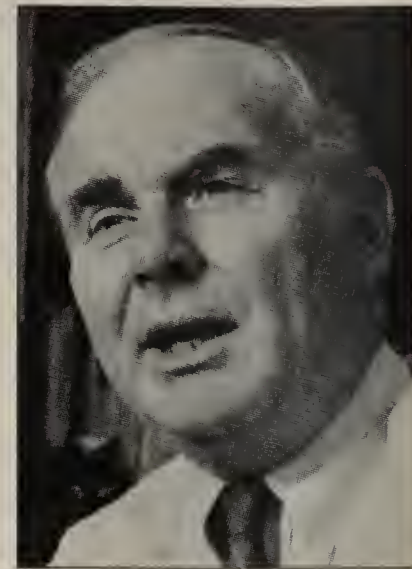
Brophy will be replaced as head of the data processing and telecommunications department by Lawrence E. Bacon, 49, who has been with the company since 1964 and most recently served as vice-president for agency marketing group systems.

Focus on teamwork

Bacon said he will continue to pursue the company's goal of moving information systems closer to business units. He said that goal means a shift in focus rather than a shift in personnel. "We are trying to get more teamwork or interplay of skills with people working more closely together," he said.

Bacon said he will continue with existing projects and will emphasize the importance of standards, which, at The Travelers, has often involved standardization on IBM hardware, software and interfaces.

Brophy, 54, has been with the company since 1971 and has been honored by the Data Processing Management Association, Carnegie-Mellon University and American Management Systems, Inc. for his achievements, which include the development of The Travelers' On-Line Processing System. The outgoing Brophy has been active as a speaker on data processing and has caught the public eye because of his diverse interests, which range from playing the bagpipes to studying Chinese.



The Travelers' Brophy

Bacon, a 1960 graduate of the University of Connecticut, joined The Travelers as a programmer trainee in 1964 and worked his way up the corporate ladder, according to the company. In his most recent post, he was responsible for developing systems that could be used by independent agencies and are compatible with The Travelers' host systems.

Regarding his management style, Bacon said, "I like everybody to participate. And I like to keep things moving. Once we set a goal, we keep moving toward it. We have a lot of meetings, a lot of people talking to each other."

Mips RISC chip hits 20 MIPS

BY J. A. SAVAGE
CW STAFF

SUNNYVALE, Calif. — A week after the speed for business applications of reduced instruction set computing (RISC) was questioned by benchmarker Neal Nelson & Associates, Mips Computer Systems, Inc. splashed down with a chip it claimed is 50% faster than all other RISC-based processors.

Mips Computer claimed its R3000 chip will perform at 20 million instructions per second (MIPS) on a sustained — not peak — rating. Nelson made public a week earlier test results that showed Sun Microsystems, Inc.'s Sun-4 Scalable Processor Architecture, or Sparc, RISC chip — which Sun claimed runs at 10 MIPS — ran slower than claimed in computation- and

disk-intensive tasks.

"RISC doesn't seem to look as good as those splashy ads," said Neal Nelson, adding that he was afraid the stampede toward RISC would diminish development of more traditional technology. But "it could be the people at Mips Computer know something," he said.

A Mips Computer spokesman said the firm benchmarked on its own testing facilities. "Sun called us and wanted to know if they could use our benchmark machines," said William Jobe, Mips Computer's vice-president of sales.

The R3010, a floating-point coprocessor the firm said performs 4 million floating-point operations per second (MFLOPS) double-precision and 7 MFLOPS single-precision, was also introduced last week.



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Miller quits Software AG

Bails out as firm's West German parent moves in

Stuart Miller, president and chief executive officer of Software AG of North America, Inc., resigned last week as the company completed its transition from a publicly held company to a privately owned one.

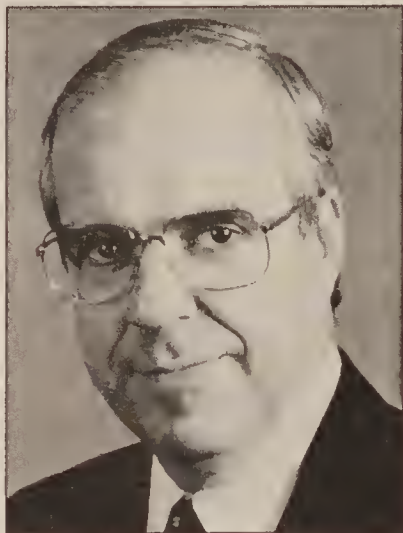
Miller would not make a public statement regarding his departure. However, the company's chairman, John Maguire, confirmed that Miller sent an internal memo last week announcing his resignation.

According to Maguire, Miller is leaving Software AG because he does not want to continue working with a private company.

Software AG had been a publicly held company until recently, when it was reabsorbed by its parent company, Software AG of Darmstadt, West Germany.

The tender offer that returned the U.S. entity to its parent was completed last Thursday.

Maguire said Linwood Pearce, executive vice-presi-



Software AG's Miller

dent of sales and marketing, will function in a chief operating officer capacity until a replacement for Miller is named.

Maguire also said he does not expect any major business changes as Software AG takes on a privately held status.

A strategy statement is being put together and will be released later this week, Maguire added.

Oversight

FROM PAGE 1

pleted in October 1986. An estimated 104,000 errors were copied into the new system and not found until inaccurate billings were made. The Tax Accounting System (TAS) also identified the errors by issuing 300,000 exception reports for mismatched information.

The audit, which was delivered to the state legislature last month, reported that 24,000 employers contacted the department with incorrect bills sent out by the system.

The EDD was responsible for collecting \$13 billion in taxes through employee withholding last year. Each of the 700,000 employers in the state must report to the department. According to the audit, the EDD stopped sending out bills for collection on old accounts last April because of the file errors.

Undercollections were not the only problems created by TAS. The audit also found that the EDD incorrectly refunded \$800,000 to 3,600 employers and that although the department knew of the error that caused the refund, the checks still went out. Most of the money has reportedly been recovered.

The origin of the problems dates back to 1980, when the EDD decided to fully automate its 19 ledger systems, including the Employer Tax Subsidiary Ledger, referred to as Edsel by the MIS staff. Six years and \$13 million later, the department had installed 450 terminals, two Recognition Equipment, Inc. Tartan XP 80 optical disk scan-

ners capable of processing 55 page/min and Amdahl Corp. 5090 and IBM 3090 mainframes.

During that time, 60 million employer files were converted from the ledger systems to the single TAS application. "The conversion took about 12,000 person-hours," said Karl Grossenbacher, deputy director of the department's tax branch.

"We recognized some areas that needed to be worked on within a few days of the system's implementation," said Steve Howe, chief of data processing for the EDD.

On the system's christening day in October 1986, however, the state proclaimed it to be phenomenal and a milestone in automation history.

But when TAS started spitting out collection notices, some employers who thought they had paid up got scared. "We had to spend a considerable amount of time telling them, 'Don't panic,'" Grossenbacher said.

The EDD did not have any idea that its original files carried so many errors because, "the old system was a lot more human," Howe said. "With human intervention, people would discover errors and reconcile the files."

Although last month's auditor's report made public the problems the EDD was having, the department did not wait to be taken to the woodshed.

Two months after the errors were found, Kaye Kiddoo, director of the EDD, put together a task force of executives. "He locked us in a room and relieved us of our other responsibilities," Grossenbacher said. "He asked for a plan to fix it and didn't let us out until January."

Unisys boosts A series power with low-end dual processor

BY STANLEY GIBSON
CW STAFF

DETROIT — Unisys Corp. added a dual-processor system to the low end of its A series last week, reportedly boosting power 75% over a previous single-processor model.

The A 6 Model K is a two-processor version of the A 6 Model F, announced in September 1987 as a replacement for the A 5 Model F.

Unisys also announced a kit to upgrade the A 6 Model F to the A 6 Model K. In addition, Unisys announced an upgrade for A 5 Model F users and A 3 Model K users, turning those systems into dual-processor A 5 Model Ks at the same performance level as the A 6 Model K. Both the upgraded A 5 Model K and the A 6 Model K offer approximately 2.8 million instructions per second each, according to *Computerworld* estimates.

Competitive edge

"These products compete with the IBM 9370 and DEC products," said Mike Deneen, Unisys program marketing manager. He said the systems offer symmetrical multiprocessing, in which both processors share the same memory and a single copy of the operating system.

With the dual-processor systems, Unisys unveiled a new I/O processor, said to speed up transmission to 4.5M byte/sec. from 3.5M byte/sec. on the previous systems.

Unisys also introduced a magnetic tape subsystem, the Model 2145, an open-reel device designed for mid-range systems. The subsystem can operate at either 50 or 100 in./sec.

The A 6 Model K can be configured with 24M to 96M bytes of memory in 12M-byte increments, using 1M-bit dynamic random-access memory chips. The maximum memory on the previous A 6 Model F was 48M bytes.

The upgraded A 5 Model K uses 256K-bit RAM chips and can be configured with 12M to 48M bytes of memory — double the capacity of the A 5 Model F.

The A 6 Model K is the first A series system to utilize the new B 9493-280 built-in disk drive. The 5¼-in. disk drive features a formatted capacity of 280M bytes per drive. Up to four of the drives can be contained in one cabinet.

Third-quarter availability

The A 6 Model K, starting at \$230,000, will be available in the third quarter of this year. The upgrade kit that changes the A 6 Model F to the A 6 Model K is also scheduled to be available in the third quarter for \$115,000.

Kits to upgrade the A 5 Model F to the A 5 Model K will reportedly be available in the second quarter for \$115,000.

Kits to upgrade the dual-processor A 3 Model K to the A 5 Model K are priced at \$150,000 and are slated for second-quarter delivery.

Duquesne hit with \$5M suit

BY ALAN ALPER
CW STAFF

FAIRFAX, Va. — Uccel Corp. and its parent company, Computer Associates International, Inc., last week asked a state court here to enjoin Duquesne Systems, Inc. from using information gained from confidential documents allegedly taken from its premises by two former employees.

The complaint was filed 12 days after local authorities seized Uccel customer account reports and other documents found at Duquesne's Vienna, Va., office [CW, March 21]. The documents were allegedly misappropriated by two former Uccel employees, James Holland and Kenneth Smartt, when they resigned to join Duquesne last December.

In the suit, Holland and Smartt are charged with violating their employment contract with Uccel by allegedly taking the documents and circulating

them at Duquesne. Duquesne is charged with conspiring to secure the documents and using them to take sales from Uccel.

In addition to requesting a permanent injunction against using information contained in the documents, the complaint asks that Holland and Smartt be prevented for two years from working in the same market area they handled at Uccel while employed by Duquesne or any other competitor. It also asks for compensatory damages in an amount equal to its lost profits and not less than \$5 million in punitive damages.

A hearing on a temporary injunction is scheduled for April 13. Duquesne declined comment on the suit.

A Computer Associates attorney said the amount of compensatory damages could only be ascertained by scrutinizing Duquesne's accounting records. The judge hearing the case will make that determination, he added.

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Tandy to offer clone of IBM's Micro Channel

BY JULIE PITTA
CW STAFF

FORT WORTH, Texas — Tandy Corp. will be the first vendor to formally announce a personal computer duplicating IBM's Micro Channel architecture with the introduction later this month of a microcomputer compatible with IBM's Personal System/2.

Intel Corp. has supplied Tandy with its as-yet-unannounced Micro Channel-compatible chip set, sources said. So far, only Chips and Technologies, Inc. and Western Digital Corp. have offered such chip sets. Intel officials could not be reached for comment.

Tandy officials also declined to comment on the new system. However, sources said the company is expected to formally introduce its version of the PS/2 Model 80 at a press conference set for April 21 in New York.

Sources said the Tandy system will be based on Intel's 20-MHz 80386 microprocessor. It will offer 2M bytes of random-access memory, expandable to 16M bytes, and a 16-bit IBM Video Graphics Array card.

An IBM PS/2 Model 80 with a 115M-byte hard disk drive and a 12-in. color monitor is priced at \$11,695. Sources said Tandy may price its system as much as 20% less than IBM's, although the company has yet to determine a price.

Vote of confidence

Recently, while publicly questioning the existence of any demand for a Micro Channel-compatible system, Tandy Chief Executive Officer John Roach expressed confidence that earlier cross-licensing deals with IBM should safeguard Tandy from legal moves designed to protect IBM's proprietary technology.

Jumping into the market with the first PS/2 compatible is an attempt by Tandy to enhance its image. A leading supplier to home and small-business users because of its pricing edge, Tandy has eagerly targeted the corporate market and formed a small direct sales force to reach those users last year. So far, Tandy's success in the Fortune 1,000 has been limited.

Tom Eagan, microcomputer manager at Wells Fargo Bank NA, a Tandy corporate customer, said he has no plans to purchase PS/2s or compatibles. "We aren't rushing out there. We don't see any particular strategic advantage to it," he said.

Senior Editor Ed Scannell contributed to this report.

Lotus's Blueprint supplies data access

BY DOUGLAS BARNEY
CW STAFF

CAMBRIDGE, Mass. — If Lotus Development Corp. has its way, its Blueprint data-access interface will be a boon for communications-hungry MIS professionals when it arrives late this year.

Lotus said Blueprint, which was announced last week, will debut with the shipment of 1-2-3 Release 3 and will also be included in every major Lotus application that ships thereafter.

With Blueprint, users reportedly will be able to query a variety of microcomputer and host data bases without leaving the Lotus application. The network-independent interface automatically translates the files into a 1-2-3 format and allows direct querying and record updates from the personal computer, according to the vendor.

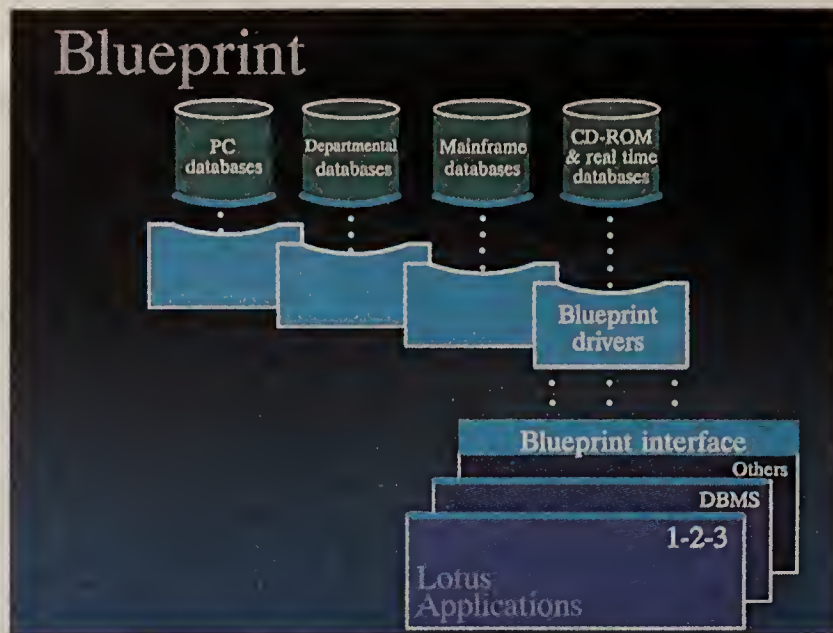
It is also said to convert field names and data, provide a hot view for live data feeds and allow transaction-level data base updates.

Among the data base developers pledging support for Blueprint are Oracle Corp., Relation-

al Technology, Inc., Microrim, Inc. and IBM. For most of them, support means writing drivers to connect their data base management systems to Lotus applications. For IBM, it means selling 1-2-3/M, an IBM 370 spreadsheet product that will include the Blueprint interface.

driver it licensed from Syntex Systems Corp. If the product is successful, 1-2-3 will compete with Ashton-Tate's Dbase in the market for SQL Server front-end tools.

But much more needs to be accomplished for Lotus to meet its goal of making 1-2-3 the cen-



Lotus's Blueprint to debut with 1-2-3 Release 3

Lotus said it will also connect its applications to the Microsoft Corp./Ashton-Tate Corp./Sybase, Inc. SQL Server through a

ter of a networked universe.

In particular, 1-2-3 Release 3, Blueprint, 1-2-3/M and a variety of third-party drivers must ship.

Most of these components are expected to emerge before the end of this year, but there is no guarantee of this.

According to one vendor, Blueprint is more than just a way for 1-2-3 to talk to data bases. It may also be a way for Lotus's still-unshipped DBMS tools to connect to a wide variety of non-Lotus DBMS products.

"Blueprint is only the first shoe that Lotus will be dropping. They want to provide the ability to connect its DBMS tools to a variety of data stores," said Peter Tierney, vice-president of marketing for Oracle.

Lotus will also offer a \$250 Blueprint tool kit for software vendors and MIS shops to create drivers tying applications to Blueprint.

Users called Blueprint a good plan. "It makes sense to try and standardize the application programming interface in general, because overall, it gives users more flexibility," said R. Bruce Johnson, manager of the PC resource center at Deloitte, Haskins & Sells.

"It is a really good trend. It makes room for even more add-on packages by opening the product up," said Wayne Maples, a PC manager at the Federal Reserve Bank of Dallas.

PC promises

FROM PAGE 1

try. During the past year, users have been bombarded with promises of spectacular products, often accompanied by vague technical specifics, fuzzy shipment dates and skimpy pricing details.

In other cases, a high level of detail is provided about products that are in fairly early stages of development.

Critical delays

Among the list of critical products that have been subject to early demonstrations but long delays are Ashton-Tate's Dbase Mac; Microsoft Corp.'s Microsoft Windows 1.0 and 2.0; IBM's OS/2, Presentation Manager and Systems Application Architecture; Lotus's Agenda, Notes, 1-2-3 Release 3 and Blueprint; and a host of IBM PS/2 clones.

Toss into that brew the still-unrealized potential of IBM's highly touted Micro Channel architecture and IBM's recent promises made in a seminar to deliver new machines with lower price points, and the vapor has begun to choke vendor credibility.

"They try to create a market position to keep people from shifting to a competitor. That is pretty tacky. It is an old IBM ploy: scareware," said Wayne Maples, a manager of PCs at the Federal Reserve Bank located in Dallas.

"Where's the beef?" another

user asked.

PC vendors cite two major reasons for preannouncing products. One is that users need to know what is coming in order to plan for a product's arrival. The other is the need to build a competitive edge.

Microsoft drew on the first strategy to prime the pump for its MS OS/2 operating system. Nearly two years before MS OS/2 was announced in April 1987, Microsoft spoke in vague terms about a protected-mode DOS, which was alternately called 286DOS, Advanced DOS and DOS 5.0.

Even IBM began to demonstrate the OS/2 Presentation Manager nearly a year before the tool kit for developers ever shipped.

It was a similar story with Microsoft Excel for the PC, which was leaked, publicly discussed, leaked some more, announced and — finally — shipped.

Balancing act

Developers say balancing users' need to know with their distaste for the unavailability of products is a seemingly impossible task. On the one hand, increasingly cynical users say they now view announcements and statements of direction with an alarming dose of cynicism.

"I believe nothing IBM tells me, and I don't believe anything we hear from Lotus until the product has gone into beta," Skopec said.

But the issue is a catch-22. For all their skepticism, none of

the users interviewed by *Computerworld* said they want vendors to stop providing information.

"It is a double-edged sword. For planning, I like to know what is coming," said R. Bruce Johnson, manager of the PC resource center at Deloitte Haskins & Sells. "The only problem is, I have to validate whether they can fulfill the promises they put forth. If you are burned a few

times, you learn who to trust and who not to trust."

What can vendors do? Most users suggested toning down the hype and providing more realistic information about a product's development cycle. Another suggestion was for vendors to be less ambitious about upgrading a product by giving users the enhancements in stages rather than in often-delayed major upgrades.

Anticipation

Micro software vendors are quick to announce but slow to deliver

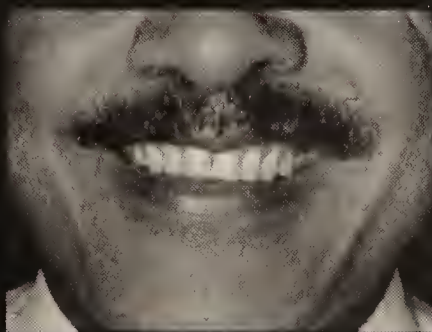
Product	Company	Date announced	Months since announced
Pageperfect	IMSI	September 1986	18
Wordperfect Mac	Wordperfect	January 1987	14
Sprint	Borland International	February 1987	13
OS/2 Standard Edition 1.1	IBM	April 1987	11
OS/2 Extended Edition 1.1	IBM	April 1987	11
1-2-3G	Lotus	April 1987	11
1-2-3 Release 3	Lotus	April 1987	11
Ize	Persoft	June 1987	Nine
3+ Open	3Com	July 1987	Eight
1-2-3 Mac	Lotus	October 1987	Five
Agenda	Lotus	November 1987	Three
SQL Server	Ashton-Tate/Microsoft	January 1988	Two
Full Impact	Ashton-Tate	February 1988	One
Dbase IV	Ashton-Tate	February 1988	One

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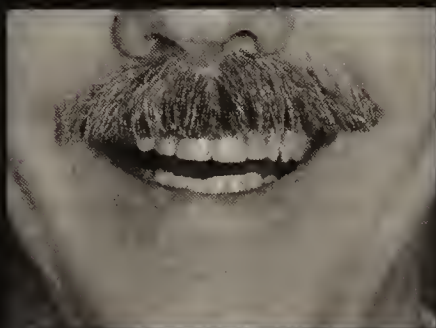
The VM Software Seminar:



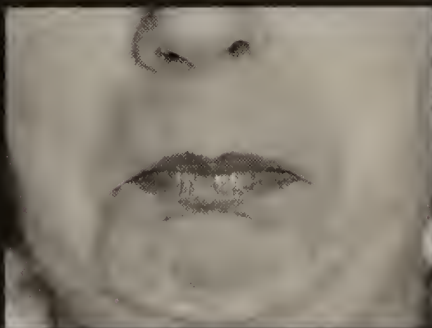
"On-site technical staff for Q & As."



"Excellent coverage of Systems Management issues."

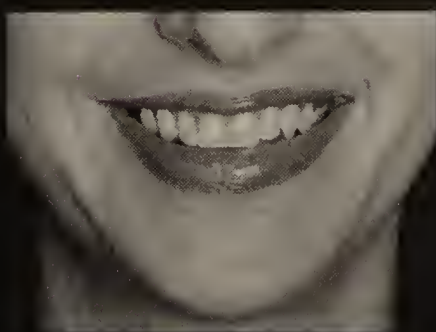


"Very informative for planning as we move into VM."

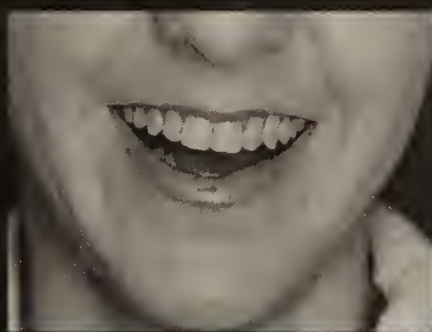


"My pen ran out of ink."

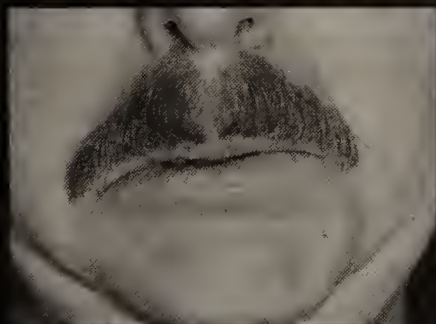
10,000 Have Seen It.



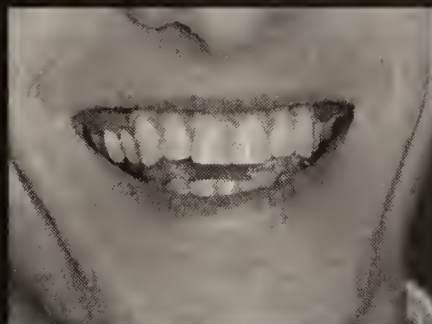
"Presented actual business applications."



"Full of suggestions I can use right away."



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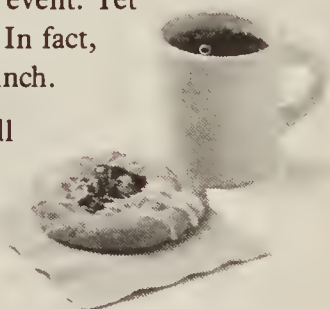
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Telenet, Pacific Gas ink deal for packet-switched network

BY KATHY CHIN LEONG
CW STAFF

CHICAGO — Telenet Communications Corp. announced an agreement last week, valued at just under \$10 million, for a private packet-switched network with Pacific Gas & Electric Co., one of the country's largest utilities.

Telenet revealed the pact at the Interface '88 show here; it also chose to unveil a CCITT X.25 encryption service along with an international service that connects Telenet's public network to Japan.

According to John Holmblad, Telenet's vice-president of network systems, Pacific Gas is embarking on a companywide plan to link disparate systems in smaller networks together on a single backbone network. The San Francisco-based utility runs a myriad of Digital Equipment

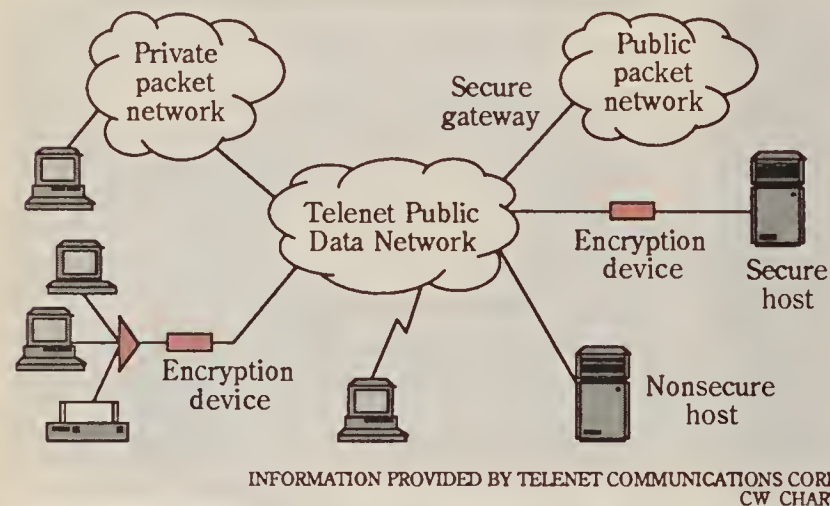
do have an obligation to our ratepayers," he said.

According to Langholff, an extensive scrutiny of existing hardware and networks showed that the most common and most agreed upon interface would be X.25. Pacific Gas will also be using Telenet's Network Control Center management tool to monitor its new investment carefully. Holmblad said the company is one of the few utilities that has decided to run its own packet network.

Hoping to attract users who are worried about security, Floyd Trogon, vice-president and general manager at Telenet, said a new X.25 encryption service will give Telenet Public Data Network customers peace of mind. The encryption service now puts Telenet ahead of Tymnet, McDonnell Douglas Network Systems Co., which has no encryption features.

Keeping the lid on

Telenet provides encryption devices to allow transmission of data on packet networks without fear of interception



Corp. Microvaxes and IBM hosts and networks from Banyan Systems, Inc., Novell, Inc. and others.

Additional access

When all five Telenet TP4255 switches and 22 concentrators are installed by the end of 1990, Pacific Gas expects to give more users access to five key applications.

These applications include the following: data analysis and distribution for gas, data analysis for electric power, corporate administration, electronic mail and private branch exchange management. The key application focuses on the Gas Scada Network, which carries information on customer billing and gas consumption.

"Our attempt is to build a corporate resource that does not obsolete anything that we have in place now," said Dave Langholff, director of data communications at Pacific Gas. The utility has more than \$100 million invested in hardware. "We wanted something economical, since we

Priced at approximately \$200 per connection, the service is based on a device manufactured by Technical Communications Corp. in Concord, Mass.

Encrypting data packets is tricky, since information is sliced up routinely. Addresses that need to be recognized may be encrypted by mistake, other vendors said. "You have to selectively encrypt the right data, and that is very hard to do," one source said.

However, Trogon countered the remark and said, "The encryptor has intelligence to scramble only the data and not the addresses." One government customer is already a user of the encryption service, he added.

In continuing efforts to broaden network connections, Trogon said Telenet has signed an agreement with Japanese public packet vendor Global Van Japan, Inc. for services between the two countries' networks. The new service would give users additional node access along with protocol conversion capabilities.

First WCC suffers birthing pains

Organizers predict better attendance if show stays linked with Interface

BY JEAN S. BOZMAN
CW STAFF

CHICAGO — If the World Congress on Computing (WCC) was an infant this year as it adjoined the Interface '88 conference at McCormick Place here, it had better be weaned by the age of one.

That is because The Interface Group, Inc., which conceived WCC as a replacement for the defunct National Computer Conference, plans to keep WCC in Chicago, returning March 29, 1989, while Interface '89 is scheduled to move to the Jacob K. Javits Convention Center in New York March 13.

But based on the slightly lower than expected attendance for both shows together — about 15,000 against a projected 20,000 — the Needham, Mass.-based sponsor is considering a change in plans.

"I can tell you that although there are contractual obligations to have WCC and Interface in different cities next year," Interface Group spokesman Peter

Young said, "the idea of keeping them together is being considered."

In general, WCC's vendors were smaller and their exhibits more modest than their counterparts on the Interface floor. "All the double-deck booths are on the second floor, where Interface is," noted Joyce McKee, vice-president of B. R. Blackmarr & Associates, a Dallas firm that studies trade shows. The second floor was the site of a two-tier IBM booth, which operated like a Disney World attraction.

A helping hand

Nevertheless, the very first WCC seemed to benefit from Interface crowds that stopped on their way to view the Interface exhibits on the floor above the WCC show.

With 130 vendors compared with Interface's 250, WCC also faced the 16-year-old Interface's competing conference schedule. Some WCC seminars were well attended, but other seminar rooms were nearly empty, de-

pending on the time of day.

A common perception surfaced that WCC and Interface were one and the same conference. "After a while, it all sort of runs together," observed Robert Liggett, regional manager of Reliable, Inc. in Conyers, Ga. "It would make sense if WCC were to continue to be attached to some show like Comdex. That would bring in a greater cross section of the computing world."

Some attendees ventured to guess that a Comdex/WCC show is being planned, but the Interface spokesman said the possibility has not yet been explored.

The concept of linking smaller, narrowly focused shows with larger, well-established shows is catching on in the trade show industry, Blackmarr's McKee said. "We're seeing other show managements trying to combine a conference program with a larger show. That way, they're shooting for very high numbers in attendance and drawing good numbers from the city where the show is held for the educational programs."

Spectrum

FROM PAGE 1

A spokesman for HP confirmed that the company would be introducing the Models 925, 935 and 955 as well as two new systems for the technical sector, one of which is rumored to be an HP 9000 Model 855.

In addition, the spokesman confirmed that two versions of an HP Micro 3000, the 3000XL, will be unveiled.

One version of the 3000XL is expected to cost around \$12,000, support six to eight users and offer 400M bytes of main memory.

HP is scheduled to release full details at a press conference Wednesday in New York. The company would not elaborate on details prior to the formal unveiling.

Users and analysts said last week that they are not surprised that HP will roll out additional Spectrum models only a few months after getting the long-delayed systems out the door.

There's more to RISC

"HP needs to impress upon people that RISC is not just a way to have fast machines, but that it is really a platform for more efficient development that will allow them to roll out machines much quicker than traditional designs would," said Gwen Petersen, an analyst with Dataquest, Inc.

The success of Spectrum in the marketplace is crucial to HP's future growth, Petersen added. "It's like asking, 'How

important are telephones to AT&T?'"

HP has previously promised that Precision Architecture — the company's version of RISC — will eventually be implemented across a range of technical and commercial sector products, a strategy that would offer users greater compatibility between low- and high-end systems.

"The one concern I've had is when HP would come out with smaller systems in the Precision Architecture, and it looks like they are addressing that concern," said Isaac Blake, technical support analyst for the City of Tempe, Arizona's Information Systems Division.

Two-way satisfaction

Precision Architecture also enables HP to significantly reduce the amount of hardware development needed to satisfy users in both the commercial and engineering sectors.

The HP 3000 Model 925, for example, will essentially be the same box as the HP 9000 Model 825, according to some sources.

The main differences are that the Model 925 runs the MPE XL operating system — the Model 825 runs HP-UX, HP's version of Unix — and will offer at least 16M bytes of standard memory, compared with the Model 825's 8M bytes.

Similarly, the Model 935 is expected to be an MPE XL variation on the HP 9000 Model 835, a supercomputing workstation that was announced two weeks ago at the National Computer Graphics Association exposition

in Anaheim, Calif. [CW, March 28].

The HP 9000 Model 855 system is expected to bear a physical likeness to the HP 3000 Model 955.

Separate technology

Sources predicted that the Models 925 and 935 will use the transistor-to-transistor logic technology employed by the Model 930, which consists of a single central processor made up of five circuit boards.

The Models 950 and 955, however, utilize the NMOS technology, enabling use of a single-board processor and greatly increasing throughput. The NMOS technology is considered too expensive and power-hungry currently to be placed in a lower end machine.

The Model 930 is a 4.5-MIPS system that sells for \$190,000 with software; a Model 950 pre-configured with software is \$270,000.

An estimated 255 Spectrum 930 and 950 models have been shipped to date, according to Kidder Peabody, a figure that should climb to 550 by the end of this month.

The Model 950 will make up 65% to 75% of the Spectrum models shipped by the quarter's end this month.

Paine Webber, Inc. predicted HP will sell 1,500 to 2,000 commercial Spectrum machines this year, totaling \$300 million to \$400 million in revenue. The HP 3000 series brings in about \$2 billion in annual revenue for the company.

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PC data base sales growth slipped in '87

BY ALAN J. RYAN
CW STAFF

PLYMOUTH MEETING, Pa. — Data base software sales in microcomputer specialty stores took a strong downward turn during 1987, while the software industry in general enjoyed substantial growth, according to a study by IMS America's Computer Markets Division.

According to IMS year-end audit reports of 500 stores, Ashton-Tate Corp. continued to lead in the data base software category. Second-place honors went to Borland International, which displaced

the former No. 2 firm, Software Publishing Corp.

The study showed that the data base market declined 2% in dollar growth and 16% in unit growth during 1987, while all other software categories enjoyed growth of 10% or more.

Analysts contacted last week said the study results were puzzling. With personal computer sales up approximately 35% in 1987, they said, it was difficult to believe that data base software had taken a downward turn.

"Ashton-Tate's Dbase sales were flat sequentially during 1987, but I assumed

clones were gaining market share," said Rick Sherlund, an analyst with Goldman, Sachs & Co.

A spokeswoman for Ashton-Tate said although the firm is seeing no decline in its data base software sales, the study results may indicate that more data base sales are being moved through other channels, including value-added resellers and direct sales.

Gary Hromadko, a partner at Robertson, Colman & Stephens, said although it is possible that the data base software growth rate declined somewhat, that segment of the industry continues to grow at

a brisk clip.

"If anything, the data base software category is more alive than it has been for some time," Hromadko said, adding that the opportunity for data management software continues to improve because of ease of use and increased functionality.

The analysts said the data base software market is still an open field, thus a decline in growth would not stem from oversaturation. However, one analyst said, new offerings coming down the pike may be contributing to any decline in unit sales.

Plot thickens

"There has been a great deal of controversy surrounding the data base as a desktop tool because of the announcement of OS/2 and OS/2 Extended Edition," Hromadko said.

The IMS study further concluded that total software sales to the store channel grew 48% in dollars and 45% in units in 1987 compared with 1986.

Ron Rehling, vice-president of IMS's Computer Markets Division, said the data base packages available to users were more powerful, but also slightly more costly, during 1987 as compared with 1986.

Paradyne sends flotilla into Netview waters

BY KATHY CHIN LEONG
CW STAFF

CHICAGO — Sinking its teeth heavily into network management, data communications vendor Paradyne Corp. last week officially proclaimed its commitment to supporting IBM's Netview and announced a bevy of products supporting that direction.

Not only has the Largo, Fla., company formed a new business unit responsible for network management, it also launched a new line called Netcare Integrated Network Systems that, according to Paradyne officials, will later support standards such as the ISO's Open Systems Interconnect and AT&T's Unified Network Management Architecture.

The first piece in the line is Netcare/Netview Interface (NVI), a graphically oriented software environment that acts as a gateway to Netview and Netview/PC to let users monitor IBM and Paradyne networks from an IBM Systems Network Architecture terminal. Paradyne products include T1 switches, statistical multiplexers and modems.

Netcare NVI, originally announced in September 1987 as Analysis NV/PC, has been revamped and renamed. It will reportedly support other vendors' hardware upon request. Priced at \$2,500, it is set to ship in the second quarter.

The company also announced two remote services: Netcare/Nightwatch and Netcare/Hotline. Under the Nightwatch service, Paradyne provides a remote network management device on user premises aimed at monitoring and troubleshooting equipment after normal business hours. Netcare/Hotline, starting at \$500, gives users advanced problem diagnosis, Paradyne said.



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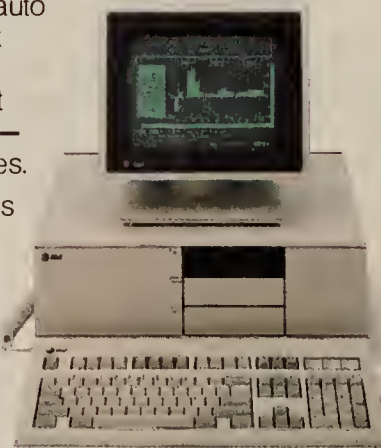
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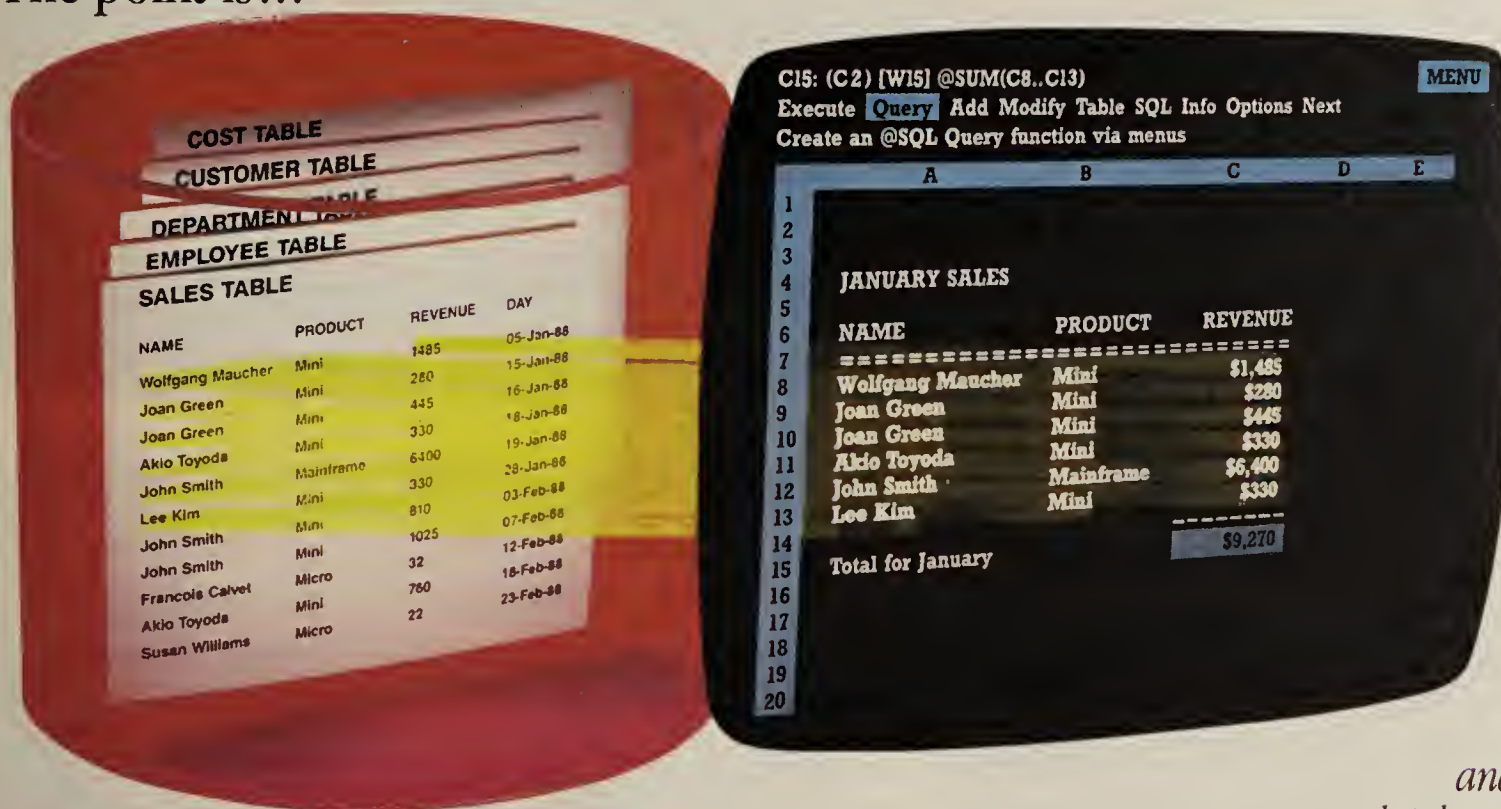
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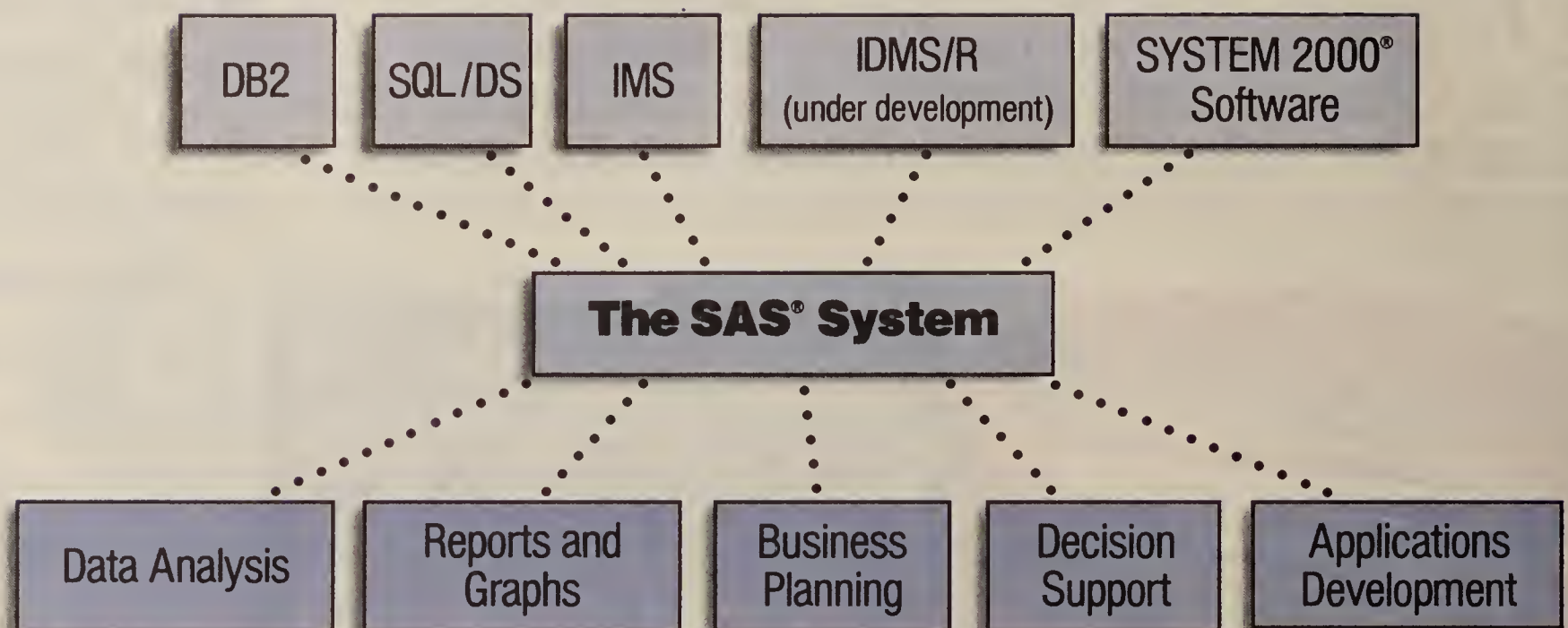
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(COMMAND==)

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***	TABLE PERSONNEL	***	COLUMNS 1-14 * SELECTED *
1	LASTNAME	LASTNAME	\$10.
2	FIRSTNAME	FIRSTNAME	\$10.
3	MIDINIT	MIDINIT	\$2.
4	ADDRESS	ADDRESS	\$20.
5	CITY	CITY	\$20.
6	STATE	STATE	\$2.
7	ZIP	ZIP	\$10.
8	PHONE	PHONE	\$11.
9	SSN	SSN	\$11.
10	HIREDATE	HIREDATE	\$8.
11	DEPTCODE	DEPTCODE	\$2.
12	SUPERVIS	SUPERVIS	\$20.
13	DIVISION	DIVISION	\$10.
14	TITLE	TITLE	\$40.

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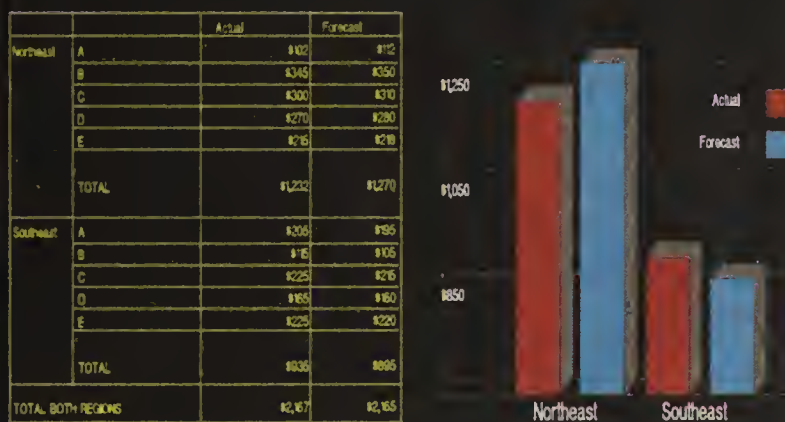
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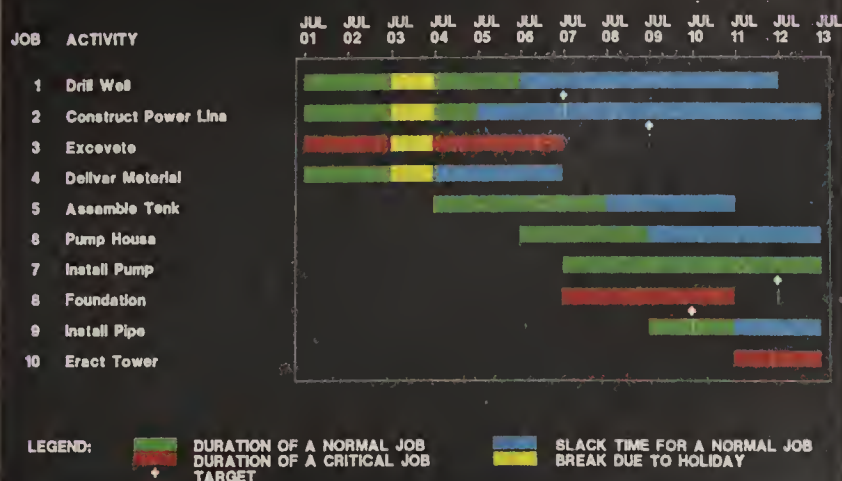
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Micom adds voice, LAN options

BY ELISABETH HORWITT
CW STAFF

CHICAGO — Trying to boost its share of the T1 multiplexer market, Micom Systems, Inc. last week announced products that it said push two of the industry's hot buttons: voice/data and local-area network to wide-area network integration.

One add-on is said to let Micom's T1 multiplexer line support a long-distance LAN-to-LAN connection; a second introduction permits a Micom statistical multiplexer to intersperse voice and data packets over the same channel, significantly increasing total throughput, Micom said.

Both offerings debuted here at the Interface '88 conference.

The DX-LAN Bridge Extension (DX-LBE) allows the communications manager to allocate T1 multiplexer bandwidth on an as-needed basis to either LAN-to-LAN communications or voice or data transmissions, Micom said.

Micom designed its bridge "from a wide-area networking perspective, where bandwidth still costs money and it's important to manage network resources as efficiently as possible," Micom senior marketing manager Lee Zipin said. Most bridges are currently offered by LAN vendors that are used to assuming

that bandwidth is inexpensive and plentiful, Zipin added. Many of these products take up an entire T1 channel, even though LAN-to-LAN communications frequently require only 56K bit/sec. or less.

In contrast, a Micom T1 multiplexer equipped with a DX-LBE can allocate between 9.6K and 1M bit/sec. to a point-to-point LAN connection.

The DX-LBE's filtering capabilities allow the network manager to restrict what types of network packets go over the bridge, as a way to alleviate traffic bottlenecks or limit user access to certain network resources, Zipin said. The operator can also monitor and collect error and usage statistics from the bridge, using Micom's Digital Wideband Exchange T1 Resource Manager.

Simi Valley, Calif.-based Micom's approach to bridging may make it easier for telecommunications managers to deal with increasing demands for LAN connectivity within their corporations, according to Chester Frankfeldt, a senior associate at New York research company The Diebold Group, Inc.

"When it comes time to hook LANs together, you are bringing entirely new demands to telecommunications people who probably are used to having total control of the T1 link," Frankfeldt said. According to a recent Diebold Group report, LAN bridge installations grew by 85% in the industrial sector and by 100% in the service sector from 1986 to 1987.

The DX-LBE is said to provide transparent support for networking protocols such as Digital Equipment Corp.'s Decnet and Transmission Control Protocol/Internet Protocol. It is set for May delivery at a price of \$6,975.

Another bridge coming

Later this year, Micom plans to introduce a second bridge product that will support long-distance connections between multiple LANs at speeds greater than 1M bit/sec., Zipin said.

Micom also introduced Stat V, a statistical multiplexer that uses Micom's Advanced Packetized Voice technology to convert voice transmissions into digital packets that can be interspersed with data packets, resulting in 100% channel utilization, Micom product manager Gregory Iverson said. Stat V uses an estimated 60% of capacity unused by voice traffic to transmit data packets, he said.

Stat V operates over a leased analog line at rates of up to 19.2K bit/sec. or over a 56K bit/sec. digital circuit. The product is available now at prices starting at less than \$5,000.

Oracle offers a little here, there

BELMONT, Calif. — Call them semianouncements, or perhaps dribbleware. Either term could describe what Oracle Corp. has become very good at: making announcements that are a mixture of new and old information, with promises of more to come.

Oracle's latest is a set of two special bundling deals that it said will allow Lotus Development Corp. 1-2-3 users to access data from Oracle and IBM DB2 data base management systems. The options are based on Oracle's SQL Star distributed networking package. Oracle, however, will not provide pricing or licensing information until next month.

Oracle said one option was designed for dynamic access to DB2 or an Oracle distributed data base that is tied into DB2. The package, called Lotus to DB2/Oracle, includes special licensing agreements for SQLConnect.

The other option is said to provide 1-2-3 users with access to Oracle DBMSs and up to 58 supported host computers using a variety of protocols, such as IBM's 3270 and Digital Equipment Corp.'s Decnet.

In order to take advantage of these options, customers also must use the Oracle Database Add-In for 1-2-3. The options will be available in volume by June, according to Mark Rollins, director of marketing communications at Oracle.

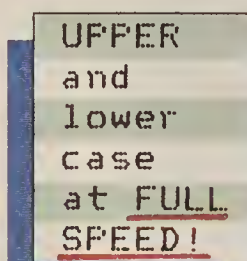
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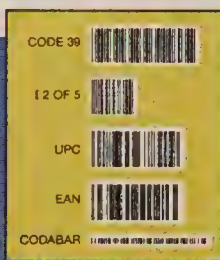
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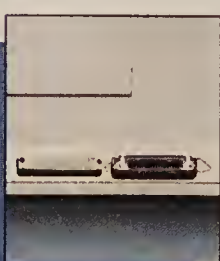
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Unix transaction processing stronghold falls

BY JEAN S. BOZMAN
CW STAFF

CHICAGO — The 23-year-old Pick operating system has landed on another beachhead: on-line transaction processors that normally run under the Unix operating system.

Last week, Pyramid Technology Corp. Chief Executive Officer Richard Lussier announced at the Interface '88 conference here that Pick Systems' Pick will run on superminicomputers operating at 7 million instructions per second made by Redwood City, Calif.-based Pyramid. The Pyramid announcement followed similar ones made during the last two years by other Unix-based transaction processing vendors, including Sequoia Systems, Inc. and Encore Computer Corp., both located in Marlboro, Mass.

The Pick-Unix agreements answer the demands of thousands of Pick users who have found that their Pick applications are running out of steam on older machines. "The Pick marketplace was desperate to find hardware platforms that could support a large number of users," explained Gil Figueroa, executive vice-president of Pick Systems in Irvine, Calif., which licenses the Pick operating system to 32 hardware vendors. "Applications are still driving the Pick marketplace. But until recently, no matter which machine you would choose, it would run out of horsepower."

Yet Pick has a strong appeal, especially to small and growing companies, since there are more than 3,000 off-the-shelf Pick applications on the market, including hundreds of financial and manufacturing applications. Users can easily install the prepackaged applications, which typically run on computers for which little or no programming staff exists. Pick is also praised for its built-in data base manager

and as a good supervisor of computerized transactions.

Pyramid's Lussier, who said his firm expects to sell 10 machines running Pick this year, added that Systems Management, Inc. in Rosemont, Ill., will be supplying Pyramid's Pick applications. A third partner in the Pyramid announcement is Vmark Computer, Inc., developer of the Uni-Verse software system that allows Pick to be run as a shell under Unix.

"This partnership is an acknowledgment that after years of Pick vs. Unix battles, there are Unix users who need Pick's off-the-shelf applications and Pick users who need the power of high-end Unix machines," said George Ridgway, Systems Management's chairman.

The porting of Pick to Unix was carried out by two companies: Vmark and Concurrent Operating Systems Technology, a firm located in Newport Beach, Calif., that was recently acquired by Sequoia.

Pick goes shopping

Pick's newest platform, the high-speed supermini, is optimized for fault-tolerant transaction processing. Leading the Pick-Unix trend was Sequoia, which has about 10 installed machines running the Pick system, said Peter Johnson, a Sequoia marketing manager. "One of the systems was bought by a cable television shopping network based in Philadelphia," Johnson said. "They handle 25,000 orders a day using Sequoia as their transaction processor."

Even IBM's 4300, 9370 and RT Personal Computer machines have been sold as Pick processors during the last several years, although usually in a custom application, according to Steve Christensen, an executive at turnkey developer Seattle OS, Inc., an IBM value-added dealer based in Bellevue, Wash. "IBM doesn't often say it, but the RT PC can be made to run under Pick and can support up to 40 users for \$50,000," Christensen said.

Dick Pick, author of the Pick operating system and president of Pick Systems, commented that he sees the porting of his 1965-vintage operating system onto superminis as a natural step for one of computing's longest lived products.

Pick multiplying on minis

CIE, Fujitsu, General Automation offer multiuser units

BY J. A. SAVAGE
CW STAFF

ANAHEIM, Calif. — Despite the lack of IBM's blessing on the technology, the range of minicomputers running the Pick operating system is expanding to serve the burgeoning army of its dedicated business-oriented users.

CIE Systems, Inc., a subsidiary of C. Itoh Electronics, Inc., along with one of Japan's largest companies, Fujitsu Microsystems of America, Inc., and General Automation, Inc. (GA) unveiled multiuser systems at Spectrum U.S.A. '88 last week.

IBM has not given its blessing to the Pick operating system by employing it in its own computers. However, The Ultimate Corp. has two IBM computers, a 4381 and a 9370, which Ultimate remarks with a Pick system. A spokesman said the firm has sold about 100 of each.

The Pick operating system makes it easy to run a data base with a small, moderately sophisticated MIS staff, according to show coordinator Gus Giobbi. Pick has a business-only reputation, with specific application software ranging from manufacturing to cemetery plot management.

Licensed to 32 vendors by Pick Systems, the operating system is used on 70,000 computers worldwide, company managers estimated, thereby reaching

about one million end users and making the total industry worth more than \$2 billion annually.

CIE added two eight-user systems to its CIES 680 line. According to the company, the 680/45 costs less than \$10,000 and is based on a Motorola, Inc. 68000 microprocessor running at 10 MHz. It comes with 1M byte of random-access memory, a 53M-byte hard disk drive and a floppy drive. The 680/55 is priced at less than \$15,000 and runs at 16.7 MHz with the same configuration.

Additionally, CIE unveiled a high-end system, the 680/275, that supports 128 users for \$56,000. It reportedly runs on a Motorola 68020 CPU at 16.7 MHz.

Fujitsu announced a top-of-the-line 160-user addition to its Series 2000, called the Model 80. The company said it runs at 25 MHz for a base price of \$149,000.

GA unveiled both high- and low-end systems in its Zebra line. The Zebra 1620 and 1820 can serve 16 and 32 users, respectively. Based on a Motorola 68020 processor at either 12.5 or 16.7 MHz for the 1620 and 16.7 or 20 MHz for the 1820, the systems start at \$12,000 and \$17,000.

The Zebra 8830 can reportedly accommodate up to 256 users. It runs on a Motorola 69030 chip at 25 MHz. A minimum configuration costs \$200,000.

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Expert shell analyzes equipment failures

Consortium's product prompts development of diagnostic systems to prevent downtime

BY ALAN ALPER
CW STAFF

NEW YORK — An expert system shell for developing applications to diagnose and repair large complex machines was unveiled last week by Carnegie Group, Inc. and Texas Instruments, Inc.

Called Testbench, the expert system shell is the first product to result from joint development and marketing agreements signed during the last two years by the two firms. TI is a major investor in

Carnegie Group.

Testbench's primary goal is to enable companies to quickly develop machine-specific diagnostic systems that reduce downtime of large-scale equipment on factory floors, noted Dennis Yablonsky, Carnegie Group's president and chief executive officer. It also can be used as a training system — a significant application for companies whose repair expertise is limited — and by hot line operators at maintenance companies, he added.

One Testbench customer, General

Tire and Rubber Co. in Akron, Ohio, estimated repair costs for its rubber processing machine at \$2,000 a day and idle labor costs at \$3,000 to \$8,000 per hour. This results in unproduced units numbering 367 to 829 per hour and production delays that cause customer dissatisfaction. General Tire is using Testbench to build a diagnostic system that it hopes will reduce machine downtime and costs while improving customer service.

The expert system will provide the company's maintenance staff at three

separate plants with a standardized method of repairing the machine that should ensure that it gets fixed correctly the first time, Yablonsky noted.

With Testbench, a knowledge base is built by gathering relevant repair information from experts on TI's symbolic processing workstation, called Explorer. A development module, called Testbuilder, is used to structure the knowledge base via a fill-in-the-blanks methodology and graphics templates.

The resulting diagnostic environment can be run on Explorer or on IBM Personal Computer AT-class microcomputers under a second module called Testview. A third module, called Testbridge, translates the knowledge base created on Testbuilder from LISP to C code so that it can run on a micro.

The first-copy price of Testbench is approximately \$42,000, which includes all three modules, one year of software maintenance and one week of training. It will be available starting June 30.

Much of the core technology for Testbuilder grew out of work Carnegie did for another equity investor, Ford Motor Co. An expert system to diagnose vehicle failures and recommend repairs was built using Carnegie's Knowledge Craft application development tool.

Ford is using Testbench to develop two diagnostic applications: one for wave soldering equipment and the other for fuel injection grinding machines, according to Dave Fawcett, an AI specialist at Ford. "Delivering a diagnostic system on a PC is a very important feature for us because we're using it in a factory," he said.

Third parties offered free Tandy licenses

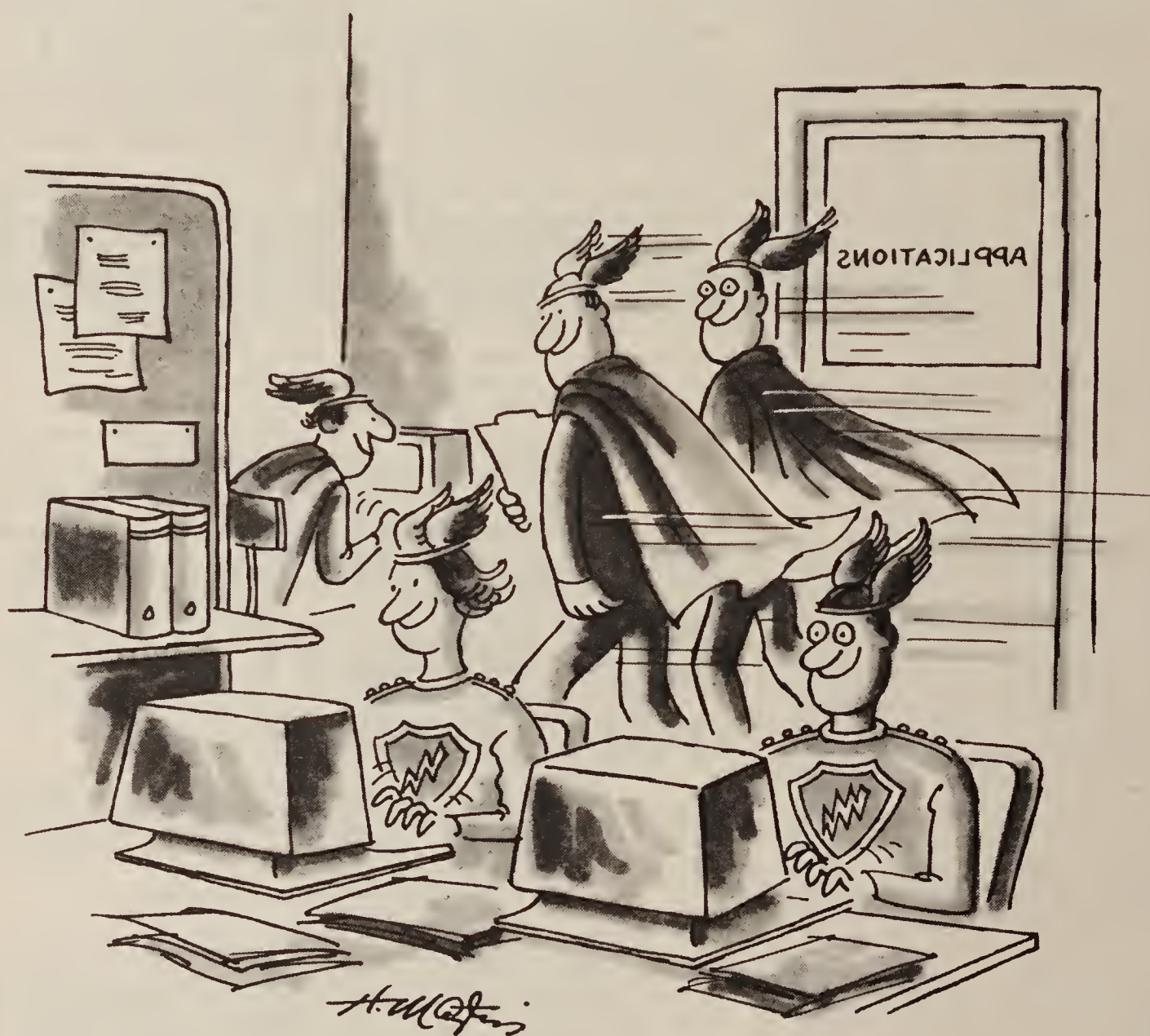
FORT WORTH, Texas — Tandy Corp. last week said it will offer free licenses for its Deskmate operating environment for Intel Corp. 8088, 8086 and low-end 80286 systems to third-party software developers.

Officials at Tandy said offering the license is critical for the low end of the personal computer industry to grow. Tandy's decision stands in stark contrast to Apple Computer, Inc.'s current lawsuit against Microsoft Corp. and Hewlett-Packard Co. that charges those companies with infringing on the Macintosh's user-friendly interface.

"I hate to see someone ebbing the flow of what should happen in this industry," said Ed Juge, Tandy's director of market planning, regarding the Apple lawsuit. "We feel so strongly about that, we're offering this for free."

Introduced last summer, Deskmate is a graphical user interface using pull-down menus and pop-up dialogue boxes requiring 384K bytes of random-access memory. It is compatible with Microsoft MS-DOS-based systems and supports video modes such as IBM's Color Graphics Adapter and Enhanced Graphics Adapter and Hercules Computer Technology, Inc.'s Hercules.

Third-party developers that have made a commitment to Deskmate include Activision, Inc., Electronic Arts and Symantec Corp.



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EDITORIAL

A nasty bug

A MINI PANIC is gripping the industry regarding an invasion of devious little parasites called computer viruses. These viruses, which are really destructive or annoying programs written by hackers, have turned up with alarming frequency in recent months in everything from IBM's electronic mail network to shrink-wrapped copies of Aldus's Freehand package. Usually, they do little more than freeze the system and maybe leave a message gloating about their dirty work. At worst, they can format hard disks, destroy data and spread like wildfire to any computer that comes in contact with them.

There's really nothing new about computer viruses. Hackers have been playing electronic pranks practically since computers were invented. What is new is the amount of publicity the latest epidemic has received. That's partly a function of the clever new label that's been placed on them — rogue programs, like viruses, can mutate and spread contagiously — and partly a reflection of the fact that so many people now use computers and are thus susceptible.

How seriously should MIS take this latest scare? Pretty seriously. Publicity has a way of turning isolated events into trends. The Tylenol poisoning scare of 1983 spawned a rash of copycat crimes, and a series of teenage murder-suicides last Christmas appeared to relate to media coverage of earlier incidents. The specter of attacks striking computers worldwide should concern everyone who operates large systems.

That concern should be particularly great in industries that are in turmoil right now. Given that the vast majority of computer crimes are committed by insiders, companies involved in layoffs, takeovers and financial crises need to be wary of the damage that disaffected employees can wreak. In other words, if you're going to give an MIS employee his walking papers, take away his logon at the same time.

Software vendors should also take note of their vulnerability to viral epidemics. Although liability issues have never been tested in court, developers could be leaving themselves open to lawsuits for unintentionally shipping programs containing parasites.

With any hope, this latest panic will encourage MIS professionals and vendors to exercise greater caution. In the same manner that the Tylenol poisonings led to wider use of tamper-proof containers, so should viral epidemics cause software makers to certify products as "clean." Now is also a good time for MIS operations to review security. How resistant are dial-up lines to unwanted intruders? Do you need an extra level of password security? If a virus were to invade your system, would you know it was there?

A dose of user education is also in order. There's no excuse for critical data sitting on hard disks without backup copies existing elsewhere.

Viral epidemics will no doubt recede from view as public interest wanes. But there's no time like the present to take measures to ensure against reinfection.



LETTERS TO THE EDITOR

Who's at fault?

The author's defensive plea to not blame computers in "Computers should not be market crash scapegoats" [CW, Feb. 15] is too often heard on the heels of a disaster in which automated processes played a role.

It is a weak argument — intellectually and morally akin to the comment often attributed to the National Rifle Association, "Guns don't kill people, people kill people."

In each case mentioned, the computer was initially identified as the culprit. Only after the dust had settled was the human act of omission or commission in the use of the computer recognized as the real source of the problem. In none of the cases, fortunately, was the real or imputed cost as great as that of the October 1987 stock market debacle.

But does it make any difference — this slight lack of semantic precision? Don't we all know what we're really talking about?

When you become bold enough in using a computer that you program it to initiate actions dependent on complex sets of criteria, you owe it to yourself to be very careful. It seems apparent after last October that that simple truism also applies to programmed decisions involving humans who get out of control.

It's time that the computer profession stop crying "fault" when the computer is blamed and, instead, employ the evidence of misuse or poor design to demonstrate that prudence, technical know-how and common sense should always be applied when using computers — particularly where the potential cost of not doing so is high.

Richard D. Harris
Rochester, N.Y.

Cheers for Amiga

I was intrigued by William Zachmann's comments concerning OS/2 [CW, Feb. 15]. Zachmann listed his view of the three main benefits of IBM and Microsoft Corp.'s OS/2 as multitasking, access to more memory and the Presentation Manager, the graphics interface.

I have a computer that does all that. My Commodore Business Machines, Inc. Amiga 2000 runs a multitasking operating system that can access 9M bytes of autoconfiguring random-access memory. It has a windows-and-icons-style interface and a Command Line Interpreter. The operating system uses less than 128K bytes, so you do not need extra memory to get booted.

Microsoft's MS-DOS compatibility comes on a card. With the card installed, a user can just open a window to run his personal computer applications, and, while his PC spreadsheet is recalculating, he can prepare three-dimensional video presentation graphics, publish a magazine and play an electronic harpsichord all at once on the Amiga.

If Zachmann is really looking for state-of-the-art hardware, then he is looking in the wrong place. Commodore has been building Amigas for more than two years now, and the competition is still catching up.

Christopher R. Hertel
Programmer/Analyst
Winnetka, Ill.

A few pointers

For future reference, we would like to offer a couple of points regarding the article on text retrieval systems [CW, Feb. 1].

A major one is that basing a market overview on IBM-only

sites is misleading in view of the role that departmental computing, primarily on Digital Equipment Corp. systems, has played in the evolution of text systems.

Minicomputers and superminicomputers have traditionally been the primary platform for such software, with mainframes used by organizations that wish to centralize or have extremely large data bases. IBM is entering this segment with the 9370, but we all know that its progress has been uncertain to date.

In this wider frame of reference, Information Dimensions, Inc. would represent a very significant player.

Regarding DEC's All-In-1 interface, Illinois Bell initially developed an in-house program to link All-In-1 to Information Dimensions' Basis. However, Illinois Bell then served as a beta-test site for Information Dimensions' own All-In-1 interface, announced last fall, and is now using the Information Dimensions program. In other words, Illinois Bell did not come up with an interface to be marketed by Information Dimensions — the opposite occurred.

I do, however, feel that the piece was very positive in making *Computerworld* readers more aware and educated concerning this rapidly emerging category of primary software.

David C. Holscher
Director, Client Services
Hughes/Rab, Inc.
Columbus, Ohio

Computerworld welcomes comments from its readers. Letters may be edited for brevity and clarity and should be addressed to Bill Laberis, Editor, Computerworld, P.O. Box 9171, 375 Cochituate Road, Framingham, Mass. 01701.

Users and standards: Who needs whom?

JOHN L. BERG

Add computer standards to your list of changes restructuring our industry.

I mean real standards, the formal kind developed by the American National Standards Institute or the International Standards Organization (ISO), the kind users can build their businesses on — not the other kinds, which help vendors build their own businesses. Whether future standards will better serve users depends on you.

Historically, vendors have formed the establishment of formal standards groups for the simple reason that they immediately feel the benefit or harm from a decision. Only the largest users have seen the advantage of joining them.

Standards organizations have long sought broader participation, but most users find the process slow and expensive, the results unpredictable and the

Berg consults in strategic, technological and competitive edge planning from Long Lake, Minn. He is editor in chief of "Computer Standards & Interfaces" and serves on the planning committee of the 1989 International Conference on Standardization.

returns marginal. Many feel excluded from a standards system that might require them to spend several hundred thousand dollars to participate.

As a final insult, the companies that don't participate benefit just as much from the standard without spending a dime.

Collaborative competition

Recently, the main arena for information technology standardization has moved to the international level, at which participation requires even deeper pockets. And a new trend — regional consortia of vendors promoting certain standards — changes the way they develop even more. The consortia provide a shield under which vendors can jointly lobby for standards without the fear of being in collusion.

Obviously, standardization is a competitive issue. Why else would we have formal, de facto, regional and vapor standards?

Standards open markets, and the resulting competition benefits users. Witness the extraordinary price reductions in PCs and the impact on how business is conducted.

But technology has moved in a direction that makes standard-

ization much more important to users. The cost of connectivity, integration, end-user access, cost reductions and shorter application development times will depend squarely on the existence of formal standards.

Users take action

Will users support formal standards? A workshop was held recently by West Germany's equivalent of the National Bureau of Standards to plan an international conference to examine the process of information technology standardization.

The participants, predominantly users, expressed a new user activism toward influencing how standards are decided.

The strong user reaction

to recent Cobol

and Fortran

standards sup-

ports this per-

ception of ac-

tivism. The

increasing im-

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dors give the

ISO's Open Sys-

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and the potential

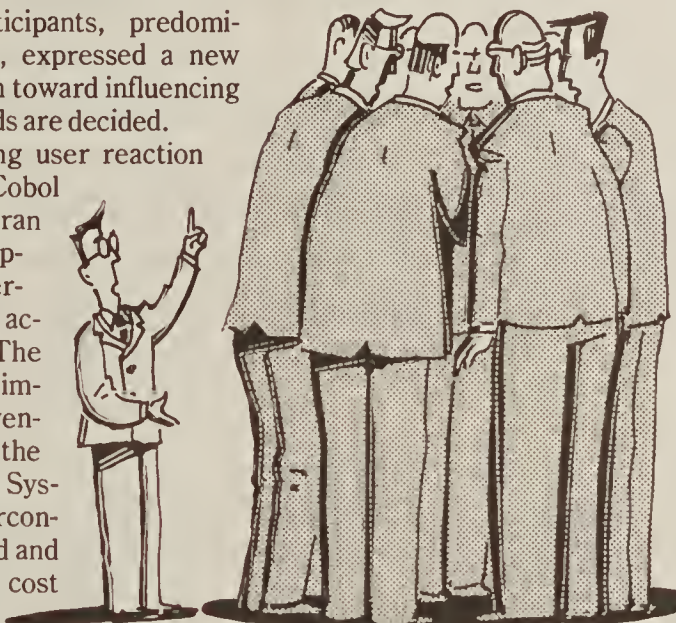
cost saving for

users have

produced several active consortia initiated by large users.

Even the Corporation for Open Systems, once suspected of existing to oppose consortia of European and Japanese vendors, has an active User Committee that could turn it into a vehicle of influence for those outside the traditional standardization process.

In fact, the growing trend toward MIS centralization to produce increased buying power will naturally lead to third-party testing, as Underwriters Lab-



PETER KUPER

oratories certifies electrical appliances. The technical foundation — the ability to specify and validate software — must be laid first, of course, for our own industry before such testing can work.

Vendors as allies

In the U.S., a group of vendors found themselves in a user role relative to Ashton-Tate's Dbase III data base package. They are currently seeking formal specification of the interface on which their companies' products are built.

Compaq is seeking support for the de facto IBM Personal Computer standard over IBM's Personal System/2; the company may eventually suggest developing a formal standard around the PC.

Independent software vendors learned long ago that depending on information given by an umbrella vendor is very tenuous; European vendors turned to the courts to get timely interface data from a major vendor.

In short, the user now finds new allies among the vendors.

What should users do? Figure out how standards fit into your business's self-interest. With that as motivation, seek out like-minded users and standards participants toward challenging the standards decision-making process itself.

No time to fight about Unix

Cooperative, not competitive, thinking is key to Unix development

AMY WOHL



Unix has been in the news a lot lately — which is nothing new. We are always peering curiously over Unix's shoulder, feeling great expectations and hoping that now is finally the time.

That it is the time for the child to grow up, for the soup to boil — the time when we will at last have a universal, portable operating system that all users can use and that all developers can write software for.

Recently, Sun Microsystems and AT&T signed agreements to merge their Unix efforts to create a single, richer version of the operating system. Interestingly, this deal is viewed in many quarters as Sun lending credibility to AT&T, rather than the other way round. AT&T, the mother of Unix, must feel rather like Xerox Star developers viewing the Macintosh interface: so much work, so little credit.

Wohl is president of Wohl Associates in Bala Cynwyd, Pa., and editor of "The Wohl Report on End-User Computing" newsletter.

This agreement angered many vendors that have been strong Unix supporters. They fear AT&T and Sun will optimize new versions of Unix to Sun's Scalable Processor Architecture (Sparc) processor chip, thus favoring vendors like AT&T, Sun and Xerox, which intend to use this reduced instruction set computing processor. Such a move would cast doubts on the future universal acceptability of Unix as a multivendor operating system environment.

Meanwhile, others join the Unix bandwagon. Unisys signed up for AT&T and Sun's version. IBM, perhaps afraid of being left behind, has expressed broader commitment to its AIX half-brother. Apple just announced its AUX version.

No gray area

What is going on here? Unix is becoming a major, mainstream issue for not only computer philosophers but vendors and users as well. More users want to employ hardware from multiple vendors in their systems designs. The proprietary operating systems of individual vendors get in the way of this grand view.

Selecting a particular proprietary operating system locks

you into a vendor — its plans, its implementation against those plans and its future success or failure. Users like more flexibility and less risk.

Of course, this view of Unix is based as much on hopes and dreams as on any current reality. There is no single Unix. Rather,

AT&T, THE MOTHER OF UNIX, must feel rather like Xerox Star developers viewing Apple's Macintosh interface: so much work, so little credit.

in the kingdom of Unix, there are many castles, each ever so slightly different from the others — and, therefore, ever so slightly incompatible.

With compatibility, like pregnancy, you either are or aren't. Being a little incompatible is not necessarily going to get users close to their goal of intervendor, intersystems portability. It probably will keep you from getting there at all.

The federal government and the European computer community have sweetened the pot by implying that Unix-based products will be favored, or even re-

quired, in their requests for proposals.

This suggestion may be premature and cause such systems to end up looking like patchwork quilts and based on unexciting or inadequate software, since the amount of available first-class business-oriented Unix software remains small.

A brightening horizon

However, encouraging signs have emerged recently, indicating that we may begin to see

ing system environment for this "groupware."

These efforts will cause the amount of Unix software to increase substantially and make the ongoing growth of Unix as a business computing environment much more likely to happen.

But none of this progress counts for much if suddenly, just as we are getting more abundant Unix software — and software that needs the multiuser, interconnecting tasks point of view that Unix can offer — we divide the Unix community into incompatible camps.

True, it is far easier to port software from one version of Unix to another than from one proprietary operating system to another, but this advantage is not enough. Customers have been waiting too long for the promise of Unix — a universal operating system that is truly hardware and vendor independent. They will not quietly settle for less.

We could wait for the technology that permits diverse operating systems to work together in an entirely interoperable environment, but that day is still somewhere in the future. Unix lies enticingly much closer, but only if we can hold onto the initial vision and avoid burying the promise of Unix beneath a heap of short-sighted quarrels and short-term commercial advantages.

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S O F T T A L K

Craig Carlson

SAA benefits marketplace



IBM's decision to implement Systems Application Architecture (SAA) has far-reaching implications for users, third-party applications vendors and Big Blue itself.

Once SAA is implemented, it will be easier for IBM users to upgrade to larger systems when their needs outgrow current computing power. With SAA, a system upgrade should not result in a need to retrain users or convert applications.

A second benefit will be even more substantial. When SAA is fully implemented, third-party applications should proliferate as never before, and competition among third parties is likely to become much more intense.

Once there is a consistent interface available to all applications developers, a fundamental change may occur. Vertical markets, once regarded as the private preserve of specialized vendors, are likely to become accessible to a broader range of competitors.

Product differentiation is a key concern of applications vendors. Tremendous effort goes into adding capabilities and functionality to product offerings.

Continued on page 22

Performance challenge issued

Sybase benchmarks Release 3 of relational DBMS, throws down gauntlet

BY CHARLES BABCOCK
CW STAFF

BERKELEY, Calif. — The most recent release of Sybase, Inc.'s relational data base management system incorporates a 100% improvement in transaction throughput as measured by a standard industry benchmark, company officials said recently.

The TP1 benchmark was conducted by Sybase on Release 3.0 and corroborated by Russ Sears, principal engineer of Aim Technology, a Palo Alto, Calif., performance evaluation firm that reviewed the test.

The TP1 benchmark simulated a standard consumer bank account transaction. When running

on a Digital Equipment Corp. VAX 8700, the Sybase system was measured at 29.3 trans/sec. with an average response time of 0.68 sec. while simulating the work load of 600 users. The average transaction was assumed to take 30 sec., although in actual practice, consumer bank transactions typically take 90 sec. A data base of 100,000 accounts was used for the test, Sybase Vice-President Stewart A. Schuster said.

The results indicated that Sybase on a VAX 8700 "could support the day-to-day transactions of a mid-sized bank," claimed Robert Epstein, Sybase's executive vice-president.

In benchmarking data base

performance, the nature of the transaction becomes the key unit of measure, along with disclosure of the conditions that surround its processing, such as average response time and whether transaction logging has been executed. Logging impacts performance by adding overhead to a system, but it is also needed to provide recovery from system failure. The Sybase benchmark included the logging function, Schuster said.

Sybase officials, in effect, have issued a challenge by making a highly specific benchmark public at a time when other vendors, such as Oracle Corp. and Cullinet Software, Inc., are pre-

Continued on page 23

Tool puts VAX queries in English

BY NELL MARGOLIS
CW STAFF

ANDOVER, Mass. — Long-term Department of Defense contractor Dynamics Research Corp. (DRC) has taken its first step into the commercial marketplace with a software system that gives workstation and personal computer users easy entry into VAX-based data bases through an English language-type interface.

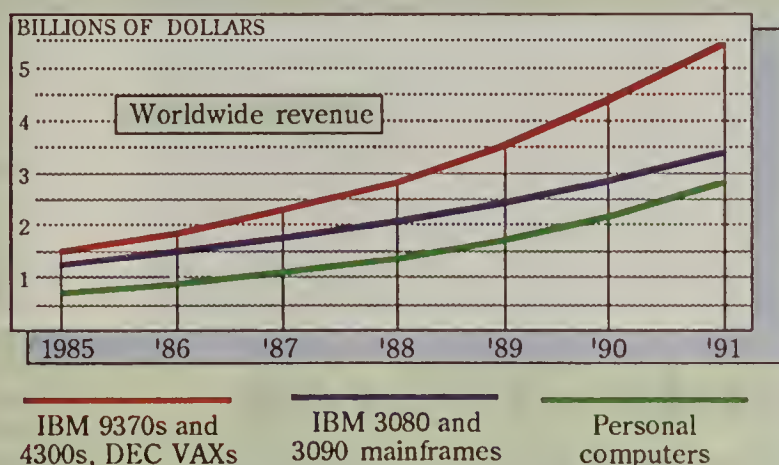
In its first implementation, SPOCK (System Protocol for Online Communication of Knowledge), which is available immediately, targets Oracle Corp.'s data bases. Future versions will bring in additional data bases as well as expand the number of hardware platforms; next in line is a SPOCK version that accesses Relational Technology, Inc.'s Ingres and is slated for shipment by the fourth quarter, according to John Ragosta, marketing manager at DRC.

Ragosta said SPOCK reduces

Continued on page 23

Data View

Applications keep on climbing
Through 1991, revenue is expected to grow faster for PC and mid-range applications than for mainframe packages



INFORMATION PROVIDED BY INTERNATIONAL DATA CORP.
CW CHART

SOFTWARE NOTES

DB2 loses to Oracle DBMS

In a rare head-to-head competition last year, Oracle Corp.'s Oracle was selected over IBM's DB2 as the mainframe data base management system at Monsanto Co. in St. Louis [CW, Nov. 23]. The firm has a mixed hardware environment as a result of consolidation and was looking for a DBMS that could operate across Hewlett-Packard Co. and Digital Equipment Corp. VAX platforms as well as on a mainframe. Questions remain about how well copies of Oracle

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Inside

- Advanced Software Products releases DASD space monitor. Page 24.
- Sequential Software announces file transfer utility for IBM's VM/CMS operating system. Page 24.

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Carlson

CONTINUED FROM PAGE 21

Early accounts payable systems, for example, did little more than track invoices and issue checks.

As the industry developed during the 1970s, vendors added functions, such as the ability to match invoices to purchase orders and receipts, discount terms and project cash requirements, hoping to beat the competition by offering a more useful product.

Look-alikes?

As vertical markets matured, it became much more difficult to differentiate products by adding functionality. In time, for

instance, all the major accounts payable products gained much the same functionality.

So vendors looked for other means of differentiation. Powerful technologies, like data bases and on-line capabilities at the mainframe end of the spectrum, and the ease of microcomputers stimulated a lot of interest in the marketplace. Vendors reacted by adopting these technologies as ways to distinguish their products. Data base management systems, on-line system interfaces and on-line transaction processing were developed. Report writers and screen manipulation tools appeared, along with other end-user tools. Expert systems are simply the latest of these technology-based product differentiators.

Today, no major applications vendor is without a technology product offering, and the competition is fierce.

SAA will change all of that. The architecture will, in effect, standardize the very technology-based features that have become the focus of competition among third-party applications vendors.

SAA has four main components. The Common User Interface defines the way end users will interact with systems. The Common Programming Interface defines the parameters of application system design and will standardize the programmer's approach, including his tool kit. The Common Communications Interface solidifies IBM's dominant position in communications protocols. The fourth component will be IBM's application

product offerings from its Application Systems Division.

Obviously, products that don't conform to SAA standards will become obsolete. Ultimately, applications vendors will be forced to rewrite their products. That's a painful exercise for vendors with broad product portfolios.

Function is the future

The second consequence is even more challenging. Once conversion to SAA is accepted, vendors will lose their ability to position their products on the basis of technology features; all SAA-compatible vendors will have portable products. The investments of the 1980s will become obsolete, and the battleground for product distinction will shift again from technology to business functionality.

Most industry watchers expect to see the first commercial SAA releases in late 1989 and 1990. The first applications are likely to be office automation products. From 1991 onward, new application releases can be expected from the general field of vendors across the spectrum of applications.

SAA may inject new vitality into the marketplace by making it easier for new companies to enter a market that had posed substantial barriers. For users, SAA will mean more applications and smoother transition to new systems.

For third-party application vendors, the post-SAA world will be more competitive and require major readjustments. Vendors lacking a clear strategic response to SAA, or the will to adapt to it, will fail, regardless of their current strengths. But those firmly committed to establishing themselves in the SAA world stand to gain all the competitive benefits the new standard represents.

Carlson is executive vice-president of Walker Interactive Systems in San Francisco.

DB2

CONTINUED FROM PAGE 21

interconnect in a multivendor environment, according to sources outside both Monsanto and Oracle who are familiar with the installation. Both Monsanto and Oracle officials declined comment.

The "Heard on the Street" column of *The Wall Street Journal* recently noted that **Computer Associates International, Inc.** founders Charles and Anthony Wang have been selling part of their stock holdings since November. Charles reportedly has sold 6%, or 4.5 million Computer Associates shares, and Anthony has sold 10%, or 2.1 million shares.

TLM, Inc. in Port Chester, N.Y., is publishing five \$20 to \$30 books on IBM's DB2 and SQL by Boris Musteata and Robert Lesser, who previously authored books on VSAM and CICS. The volumes include *The DB2 Guide: Developing DB2 Applications and SQL Programming* and *Relational Data Base Design for DB2 Applications*.

SPC Software Services, Inc., a subsidiary of Security Pacific Corp., announced it has acquired **Precision Business Systems Ltd.**, a New York firm specializing in transaction and communications software for the financial services industry.



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Challenge

CONTINUED FROM PAGE 21

paring to launch their own versions of relational transaction processing systems.

In a comment directed at Oracle, Schuster said, "We don't believe you can announce high performance and at the same time put your system on 30 to 40 hardware platforms."

In addition to the doubling of transaction throughput, Sybase officials said new fault-tolerant features will be included in Release 3.1, slated to be released in the second quarter of this year. The Sybase data base engine will replicate a copy of the data base and transaction log on a second disk system when running on a VAX, Sun Microsystems, Inc. workstation or Pyramid Technology Corp. 9820 superminicomputer. In case of disk failure, Sybase will access the intact copy and transaction log.

The fault-tolerant features on a Vaxcluster will allow a companion data base engine to be ready at all times, awaiting rerouted transactions in the event of primary-engine failure. Sybase claimed its Vaxcluster fault tolerance will be the first to provide on-line recovery with a negligible performance penalty.

On a Vaxcluster, Sybase will avoid the VAX/VMS lock manager by building a record-locking supervisor into the data base engine. Sybase avoids the I/O involved in using the VMS lock manager as long as the records accessed by the Sybase CPU are on disks directly tied to it. The VMS lock manager is a commonly recognized bottleneck for transaction throughput on a Vaxcluster.

In addition, Sybase achieves its transaction throughput by packaging the data base query, updates and data manipulation into a single, compiled transaction. Most relational systems execute one SQL statement at a time, waiting for acknowledgment on each step before proceeding, according to Berl Hartman, director of product marketing.

The Sybase system is priced from \$20,000 to \$100,000 for superminicomputers and from \$2,000 to \$10,000 for supermicro workstations. The Companion Server for mirroring data bases and logs is priced from \$1,500 to \$7,500.

Measuring performance

The Yankee Group, in its "The Future of Transaction Processing" report last year, cited a similar bank branch debit-credit transaction, dubbed ET1, as the basis for Tandem Computers, Inc. citing its SQL-based fault-tolerant system as being able to process 200 trans/sec. The Tandem system was run on a 32-processor machine, the VLX 804. There are differences between ET1 and TP1 transactions, so the results are not directly comparable.

Other cited ET1 benchmark results include the IBM 4381 Model 13 system at 14 trans/sec. and IBM's DB2 on a 3090 Model 200 at 40 trans/sec. The Yankee Group report also cited an ET1 benchmark of the predecessors of Version 3.0 of Sybase as yielding 15 trans/sec. on a Sun-3/160 AT&T Unix System V machine.

The on-line transaction processing market has been estimated by The Yankee Group as worth \$17 billion in hardware and software sales in 1987; the market is projected to grow to \$34 billion by 1991.

VAX queries

CONTINUED FROM PAGE 21

the need for a user to understand data base query languages. An internal, DRC-proprietary communications language takes the user's English requests, translates them into whatever query language the relevant data base receives and routes them to the data base. The translation process is then reversed so that the user receives the requested data in English, as well.

Routing is determined by SPOCK's global data dictionary, which sits on the user's PC or workstation, Ragosta said. The data accessor component of the SPOCK package resides on the data base

host hardware. Such features, combined with SPOCK's specially engineered cross-system join capability, allow the software to serve distributed data base environments, Ragosta explained.

Because the integration of the data takes place at the workstation and PC level, Ragosta said, very little processing actually takes place on the VAX, thus conserving computer resources.

Custom features

"Also," he added, "we have addressed a frequent failure in natural language interfaces: SPOCK allows for domain-specific customization." The software has a vocabulary of 1,000 words and employs more than 3,000 lexicographical rules. It can be highly customized to a user's spe-

cific business, Ragosta said.

What is more, he said, SPOCK continues to "learn" as it interacts with the user. For example, a user might enter the query, "How much is the XYZ operation worth to us in deutsche marks?" If SPOCK replies "I don't understand deutsche marks," the user need only type in "A deutsche mark equals such-and-such many dollars." The software, which already has "dollars" in its working vocabulary, will add deutsche marks, and be able to deal with the term the next time it arises.

The software offers data base, table and field-level security.

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Utilities

Advanced Software Products Group, Inc. has introduced a utility for measuring an allocating direct-access storage device (DASD) space.

Called **DASDtrak**, the product records DASD space allocation activity and monitors DASD space usage down to the second, the vendor said. It uses the DASD monitor table in main memory and writes space utilization records, including all transient scratch files and temporary data sets.

DASDtrak is priced at \$9,500 for the

first CPU and \$6,650 for subsequent CPUs.

Advanced Software Products Group, Suite 401, 2335 Tamiami Trail N., Naples, Fla. 33940. 813-649-1548.

A CICS data stream compression package designed to improve terminal response time and network performance has been announced by **Data 21**.

Turbo Response 1.1B provides both standard compression of 10% to 35% and turbo compression of 50% to 85%. A memory management feature allows users who have limited CICS dynamic storage area to obtain higher levels of

compression, the vendor said.

Another feature is the ability to intercept read buffer requests issued by applications that need to save terminal screens, while transparently performing the function. Also included is a feature that allows the viewing and logging of another terminal's screen.

Standard compression costs \$50. Turbo compression costs from \$2,995 for DOS versions to \$5,995 for MVS versions.

Data 21, Suite 121, 3838 Carson St., Torrance, Calif. 90503. 213-543-5599.

A utility that lets Digital Equipment Corp.'s VAX/VMS software developers license their products on a user basis has been announced by **Owen & Davis Sys-**

tems, Inc.

Called **Box Office**, the product tracks the number of people using a software application program and prevents user access beyond a predetermined limit set by the software developer.

It is an external subroutine that works with any programming language supported by the VMS operating system, the vendor said.

The Box Office user tracking system is priced at \$695.

Owen & Davis Systems, Suite 116, 3100 Airway Ave., Costa Mesa, Calif. 92626. 714-540-8878.

Xcopy, a file transfer utility for IBM's VM/CMS operating system, has been announced by **Sequential Software, Inc.**

Xcopy replaces the CMS Copyfile command. It transfers data stored in CMS files and allows users to copy, concatenate, append, compress and reformat CMS files.

Some features of Xcopy include support for assembler exits for data modification; the ability to run as a nucleus extension; the ability to encrypt files; the ability to restrict input to either packed or unpacked files; and the ability to create a list of output files from a copy operation, writing it to a file or stacking into the console buffer stack.

Xcopy can be leased for a fee of \$500 per year.

Sequential Software, 62 Washington Ave., Dumont, N.J. 07628. 201-385-9360.

Data base management systems

Interactive Software Systems, Inc. has announced that its **UDMS** data management and retrieval product now supports Relational Technology, Inc.'s Ingres data base management system for Digital Equipment Corp.'s VAX/VMS environment.

UDMS features a window-based approach to reporting, exporting, querying and updating. It offers full table processing, support for up to 32 relationally joined files and data bases, full field editing capabilities, multiple printer support, a dictionary interface to Fortran, Cobol, Basic and Pascal, screen refresh for remote users and automatic setting of terminal characteristics.

The UDMS system ranges in price from \$2,950 to \$15,300.

Interactive Software Systems, 7175 W. Jefferson Ave., Denver, Colo. 80235. 303-987-1001.

Training software

Innovative Software Solutions, Inc. has announced **Version 3.00** of **TMAuthor**, the authoring language for its Teachme/3000 computer-based training series for the Hewlett-Packard Co. HP 3000.

Version 3.00 enhances the links into the HP 3000 MPE operating system, simplify the handling of question and answer routines and menu processing and improve the formatting capabilities available to course authors, according to the vendor.

The software costs \$3,000 for new users and \$2,500 for users who already have Teachme/3000 modules.

Innovative Software Solutions, 10705 Colton St., Fairfax, Va. 22032. 703-273-5025.

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MICRO BITS

Douglas Barney

Breaking all the rules



Those dog-gone 12 rules of relational. We've jumped on the SQL and microcomputer data base server bandwagon with as many feet as anyone, but one result we don't want is to belittle some very fine non-SQL data base products. Nor do we wish to imply that using microcomputers as data base servers is an entirely new concept.

Clearly, SQL is the wave of the micro data base future, but is there more to today's data bases than SQL? Well, for the 1.5 million users of Ashton-Tate's current Dbase, the answer is yes. And for David R. Leininger, projects manager for Micro Data Base Systems (MDBS), the answer is an emphatic yes.

Leininger recently took issue with *Computerworld's* coverage of the emerging interest and development in SQL data base server technology and made several excellent points. Cullinet Chairman John Cullinane, who was embroiled in a brouhaha over Codd and Date Consulting Group's criticisms of his "nonrelational" software, would be proud. Cullinane, how-

Continued on page 33

VGA board uses video RAM

Video Seven claims its specialized chip outhustles PS/2 adapter

BY ED SCANNELL
CW STAFF

NEW YORK — Video Seven, Inc. last week introduced what it said is the first IBM Video Graphics Array (VGA) product to use video random-access memory on a microcomputer.

Compatible with Intel Corp. 80286- and 80386-based systems, the Video RAM VGA board uses a proprietary chip recently announced by Video Seven that enables it to outperform the board used in IBM's Personal System/2 Display Adapter, according to the company.

All VGA boards currently available use dynamic RAM, which is intended for system

memory. The Video Seven product uses video RAM, which is specifically optimized for video controllers.

"Video RAM VGA takes the brakes off the processing power of 80286- and 80386-based personal computers when running graphics applications," said Paul Jain, Video Seven's president and chief executive officer.

The product is targeted at power users with 386 or high-end 286-based machines, particularly those running graphical operating environments such as Microsoft Corp.'s Windows or those intended to run IBM's unreleased Presentation Manager.

"With these environments [Windows, Presentation Manag-

er], we find the issue is performance. IBM's VGA or similar devices slow down the machine by producing too many wait states," said Tom Stevenson, Video Seven's vice-president of sales and marketing. "The significance of the zero-wait states of this product means that a user who shells out big bucks for high-performance machines will get the performance he paid for."

Stevenson claimed Video Seven's video RAM VGA is the fastest graphics board available.

The standard version of the product includes 256K bytes of on-board video RAM, displays four colors and has a resolution of 1,024 by 768 pixels. Users

Continued on page 30

Bare-bones Paradox to hit street

BY STEPHEN JONES
CW STAFF

SCOTTS VALLEY, Calif. — Borland International is set to release a bare-bones version of its Paradox data base this year that will reportedly be designed to let developers write applications in a variety of Borland languages, including Prolog, Turbo C, Turbo Pascal and Turbo Basic.

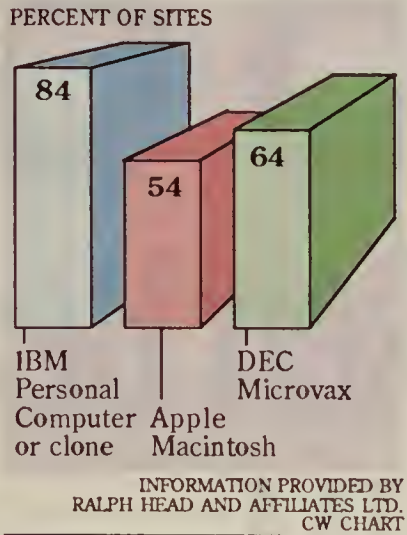
The new package will only include Paradox's 200K-byte data processing engine and the program's Query-By-Example module, said Philippe Kahn, president of Borland. Missing from the program will be its standard high-level Paradox Application Language (PAL), which Borland inherited when it acquired Paradox and Ansa Software last year.

Borland will leave it up to developers to decide if they want to work with the old PAL or with the firm's more popular implementations of C, Pascal and Basic. The product, which has not

Continued on page 31

Data View

Mix and match
A survey of Dexpo West '87 attendees reveals a variety of PC installations in DEC sites



Emerald Bay leaves the dock as Ashton-Tate suit settled

BY STEPHEN JONES
CW STAFF

INCLINE VILLAGE, Nev. — A shroud of uncertainty over the future of Migent Software, Inc.'s Emerald Bay data base management system was recently lifted when Ashton-Tate Corp. settled a lawsuit it had brought against Migent to stymie Emerald-Bay's development. The long-awaited \$695 data base server product recently began shipping.

Ashton-Tate filed suit against Migent and Emerald Bay author Wayne Ratliff more than a year

ago, charging Ratliff with incorporating proprietary Ashton-Tate Dbase technology into the data base he was writing for Migent. Ratliff was previously employed by Ashton-Tate as the lead developer of Dbase and chief scientist.

Ashton-Tate's suit apparently forced Migent to reduce Emerald Bay's compatibility with Dbase, but Ratliff said last week that "Emerald Bay is the product that I want it to be."

The timing of the settlement could not be better for Incline

Continued on page 33

Inside

- Polaroid's Duray gives Apple-DEC time to develop. Page 27.
- Orion claims better data transmission path. Page 27.
- HP designs CAD graphics tablet. Page 34.

CICS DL/I is the latest addition to Micro Focus COBOL/2 Workbench!

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- GSAM
- Secondary Indices
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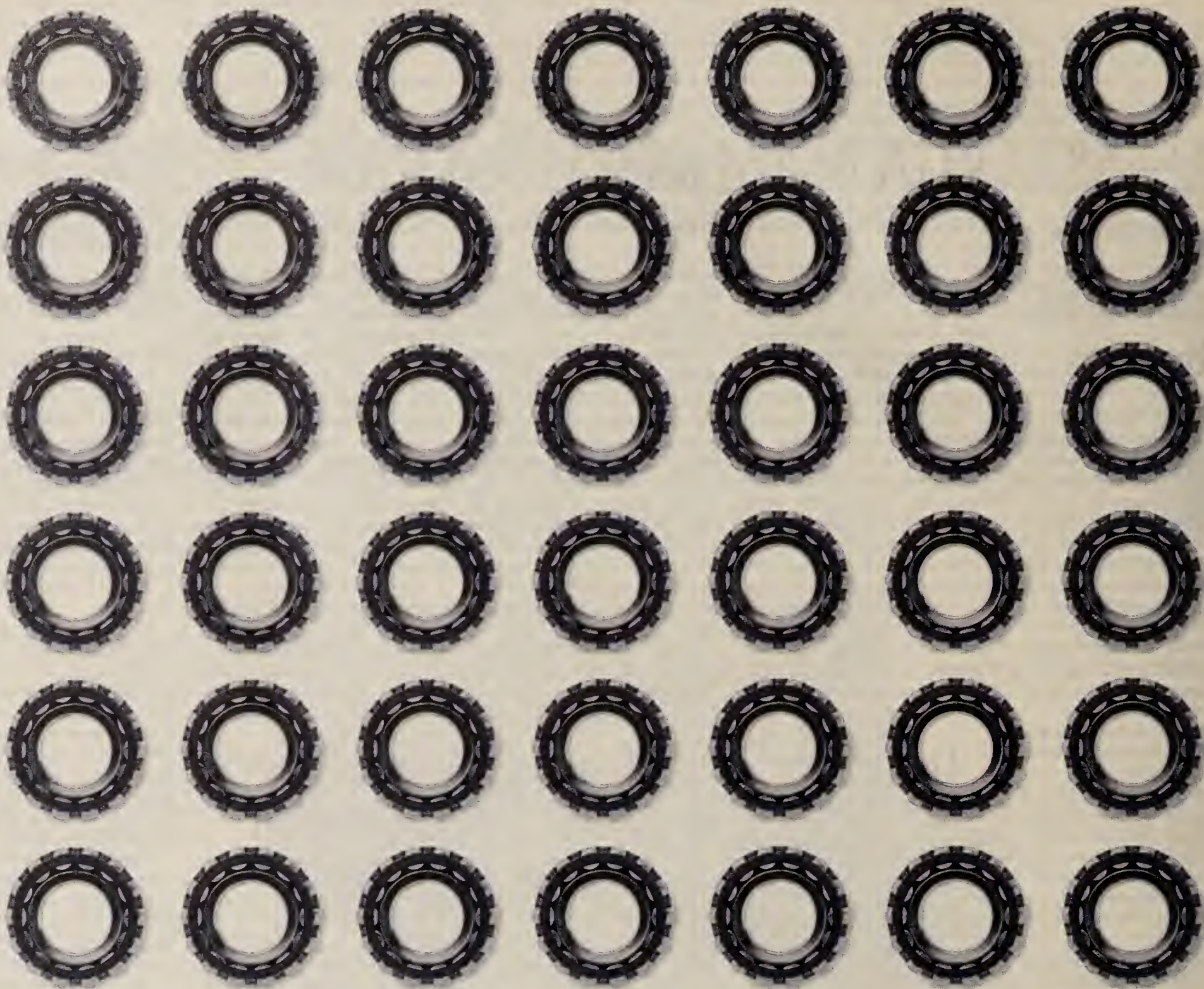
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S M A L L
T A L K

Mort Rosenthal

OS/2: Grin
and bear it

If you're an information center manager or an MIS manager, the news about OS/2 is both good and bad.

On one hand, IBM and Microsoft's OS/2 is an operating system that was designed with the corporate computing environment in mind.

On the other, to go from today's DOS world to the OS/2 world seems like an almost impossible task. The issues are complex, the potential for incompatibility is enormous, and the amount of new information you need to absorb is vast. And meanwhile, you've got all you can do to support the relatively simple DOS world of today.

Don't delay

As tempted as you may be to postpone dealing with OS/2, it makes more sense to deal with it now.

Don't forget how the personal computer information center got started: It developed because the data processing departments in most companies were not prepared to support PCs. So the most sophisticated PC user — who might not have been in the MIS organization — became the PC coordinator.

If MIS had been involved from the beginning, a lot of today's problems might have been avoided. That is why it makes sense for you to assume a proactive role in the transition to OS/2.

Users are hearing about OS/2 today, and they're hungry

Continued on page 31

Polaroid's info manager is giving
Apple-DEC, OS/2 some time to develop

As information technology manager at a company constantly on the leading edge of photographic technology, Peter Duray has a clear picture of how his department and its developments impact the corporation.

At Polaroid Corp. in Wal-
tham, Mass., Duray constantly takes mental snapshots of what the company's technology users tell him they need. Part of this task is learning about some products before they are announced, such as Digital Equipment Corp.'s Vaxmate, which Duray beta-tested.

Further, it is Duray's job to determine what the users need and then manage the implementation. "We tend to be bureaucratic if they haven't picked things from the recommended lists," he said, "but if somebody has a good reason, they can buy



Polaroid's Duray focuses on end users' needs

almost anything."

Duray recently discussed MIS strategies and the role of microcomputers, networking and artificial intelligence at Polaroid with *Computerworld* senior writer Alan J. Ryan.

IN
PERSON**Are you still continuing to buy into the Digital Equipment Corp. Vaxmate market?**

Not particularly. I would say the Macintosh announcements for that have put people on hold as far as connecting to DEC systems, and they're waiting to see what unfolds there.

What about VAX/VMS services for DOS?

We have a version of it running on our VAX 8700 in the data center to demonstrate connectivity between IBM Personal Computers and the VAX. We're also running a Novell local-area network to show people in the company what the two technologies are that we think are most viable here.

Are the services through a PC as good as those**through a Vaxmate?**

They're not as high-performance between the Vaxmate and the VAX as between a PC to the VAX, but people seem to be more satisfied with the real thing — a real IBM PC.

Do you favor the concept of a personal VAX?

Yes. We have a Vaxstation 2000 here that we use for things in the low-end local-area Vaxcluster, and it performs very well.

Which personal computers do you have at Polaroid?

Predominantly IBM PCs and [Apple Computer, Inc.] Macintoshes, but we also have Wang systems, DEC systems and a small number of others. We have a couple Vaxmates.

Is it difficult to support PCs
*Continued on page 28*Fuming over 25-cent stamps?
Orion claims a better wayBY ALAN J. RYAN
CW STAFF

WATERBURY, Conn. — Mail, boats, cargo planes, phone lines, telex, facsimile machines and satellite transmissions: There are many ways to route data to and from remote locations.

But Orion Microsystems, Inc., based here, claims it has a more productive way to collect information using personal computers and public or private communications networks, such as GE Information Services.

Typical applications for the product, called FDC/Pyramid, include the collection and consolidation of financial data, personnel data, updates on manufac-

turing operations and sales analysis by territory, according to Joseph DiCioccio, vice-president of Orion.

In the collection location, a system administrator identifies the information it needs to gather from the reporting locations. Next, the administrator can design forms on which the necessary information can be entered using standard formats provided by the software.

The system also includes currency conversion, adjustments, allocations, eliminations, multi-structure consolidations and report writing capabilities, DiCioccio said.

"FDC/Pyramid doesn't rely on external software products,

FDC/Pyramid

Price: \$20,000 (control location)
\$750 (remote location)

Requirements:**Control location**

- IBM PC AT or compatible
 - 40M-byte hard drive
 - Modem
- Remote location**
- Dual floppy IBM PC or compatible with 256K bytes

but it can work with any software that creates ASCII files first," said Robert Trenck, Orion senior vice-president.

Users said the major benefit of FDC/Pyramid is its ability to receive accurate data at the collection site. Information does not have to be rekeyed or checked for accuracy because it must be completely tested before it can be sent to the collection site.

Dimitri Gat, a data administrator at Emhart Corp. in Farmington, Conn., said his company's former methods for receiving remote data had been telex, telephone and the mail. He is currently using an older version of the Pyramid product.

No margin for error

"People were able to send in information that wasn't accurate," he said. "With [FDC/Pyramid], you can't transmit if the data is incorrect."

Because Emhart is a multinational corporation, Gat said, data problems can be costly. "We had a lot of problems with data inconsistencies, and because the data was inaccurate, it took a long time and a lot of people to prepare a monthly report."

At The Stanley Works in New Britain, Conn., the story is much the same. "We were looking for

Continued on page 28

Avoid hard times for hard drives

BY T. A. ELKINS
SPECIAL TO CW

A hard disk is a precision device. And with most precision devices, things can sometimes go terribly wrong. Fortunately, there are several third-party software products, and some new disk drives, that will help users avoid hard disk drive pitfalls.

The chances that your highly precise disk drive will go out of whack are based on a number of factors. For example, the increasingly popular lower priced hard disk drives may seem like a bargain initially, but when valu-

able data is lost, the low price loses its luster.

These lower priced hard disks have a life expectancy of about a year in daily commercial service. This lack of longevity can make the medium-range, more costly drives from such firms as Control Data Corp. and Core International attractive for reliability-conscious buyers. The Core drives, for example, carry a three-year warranty — evidence that Core has confidence in its product.

But there is hope for less expensive drives. Both disk-caching and disk-defragmentation

software can help speed performance and increase life span.

In testing, I ran several drives using older technology against a Core drive. The old drives offered access times of one-tenth to one-fifth of a second, but the Core drive turned in an impressive 19- to 25-msec access time range.

There is really nothing that can make a drive itself faster than its internal functions will allow, but one software product and another software and hardware combination can both improve apparent performance and

Continued on page 30

Top sellers

Software: March 21-25

1	Lotus's 1-2-3
2	Ashton-Tate's Multimate Advantage II
3	Ashton-Tate's Dbase III Plus
4	Fifth Generation Systems' Fastback
5	IBM's PC-DOS
6	Wordperfect Corp.'s Wordperfect
7	IBM's Displaywrite 4
8	Software Publishing's Harvard Graphics
9	Microsoft's Word
10	Delta Technology's Direct Access

INFORMATION PROVIDED BY CORPORATE SOFTWARE, INC.
CW CHART

Ana Tech scans desktop market

In an attempt to capture the burgeoning corporate in-house publishing niche, Ana Tech Corp. recently introduced a scanner for formats up to 17 by 24 in. to be run on desktop or workstation publishing systems.

The desktop-size Eagle 1760 uses camera technology to con-

vert black-and-white text and images, including photographs, to raster or vector data. For raster-only conversion, the scanner costs \$32,000. For raster and vector conversion, the system costs \$47,000, according to a spokesman.

The operational software

runs on Apollo Computer, Inc., Digital Equipment Corp., IBM Personal Computer AT and Personal System/2 and Sun Microsystems, Inc. systems. The software includes editing tools.

Ana Tech's earlier scanners are primarily for engineering applications, the spokesman said.

Orion

FROM PAGE 27

a data entry vehicle that would provide us with transmission capability and provide a way to transmit machine-readable balanced and edited data to us," said William Negrilli, manager of corporate systems.

Because the forms are gener-

ated by the systems administrator, Negrilli added, the learning curve for the field staff was minimal, "and it also made it easier for multiple countries and multiple languages," he said.

Negrilli is currently working on a plan to implement the most recent version of FDC/Pyramid. "It's a much smoother product today," he said. "The key things we were looking for were ease of use and the ability to be maintained by users in the field."

Money matters

Although Negrilli said Stanley was able to speed up its closing cycle and reduce the expense of overnight packages, telexes and long phone calls, he said the system is probably equal in cost to his former methods. "We didn't have a network in place before. But the cost of those factors in the past were buried in the user accounts in the field."

Emhart's Gat said his firm has realized a cost savings. "It decreased the time it took to close the books by as many as 10 days." He added that the vendor also plays a part. "You have to look at that to find a good vendor and get a good rate."

Emhart is using FDC/Pyramid in more than 100 locations worldwide to collect business information monthly; Stanley has some 40 or 50 remote locations.



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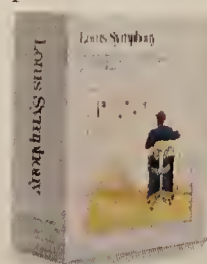
depth of each Symphony application is not sacrificed for the sake of integration. Each function is powerful enough to meet the user's growing computing needs. In fact, the Symphony spreadsheet is based on the same technology as 1-2-3®, the industry standard.

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Info manager

FROM PAGE 27

from multiple vendors?

It's difficult, but it's what makes life interesting. You just can't turn to somebody for an A to Z list of what to do — you have to make it up yourself.

Sometimes it's a real problem, because you're never sure if what you're recommending is going to be what's truly viable six months or a year from now. It's not some stated strategy from a vendor, it's one you've put together. But, at the same time, you're not locked into the lack of certain options that vendors put you in.

Given a choice, would you standardize on one personal computer?

Probably not. It doesn't fit the mode of operation or our culture at Polaroid. We're a very diverse company.

Are there any special considerations because of the kind of firm Polaroid is?

Yes. You have to justify your guidelines and accept that people aren't going to always follow them. People who have come from very autocratic organizations that are run from the top down find it a major concern and frustration to them that the amount of latitude in buying, maintaining and configuring

Continued on following page

Continued from preceding page
computer hardware is so broad here.

How are your PCs networked?

Predominantly, we're using Ethernet to link our PCs. The Macintoshes that are linked together to date are linked through Appletalk. We also have a Novell network in VAX/VMS services. Some people are just using Decnet task-to-task in factory applications over Ethernet, but the most common thing is Ethernet, which is in very broad deployment in Polaroid.

We have an Ethernet that extends from Cambridge to Waltham to Norwood, [Mass.], and it's the same local-area network, so a PC in Norwood could be connected over that network to a mainframe, PC or server in Cambridge or Waltham.

What is the role of PCs at Polaroid?

I would say that if you could gather all the applications in the world, we probably do 95% of them at Polaroid. Everything from office automation tools with word processing and spreadsheets to CAD tools to process monitoring tools and quality control tools. And we use it for image processing work to graphical output work, which are some important mainstream technologies to Polaroid. We even produce peripherals — Polaroid Palette — to go with these things. And we've introduced an electronic identification system that is based on a PC, which will take your picture and store it in a mainframe data base and network it anywhere in the world for ID purposes.

Into what kinds of mainframes are the PCs tied?

We have both IBM MVS and VM systems; the PCs are tied into the mainframes predominantly through two communications software packages, and the transports are mostly asynchronous to the mainframe. There is a scattering of the coax cards, of course. You name it, we do it.

Are you planning to standardize on IBM's Personal System/2s?

Yes. We were one of the early converts, and we standardized on PS/2s as our preferred IBM PC within 45 days of IBM's announcement last April. We're buying predominantly Model 50s, some 60s and a few 80s. We're also buying a few Model 30s but are not recommending them.

What about IBM and Microsoft's OS/2?

We're taking a very go-slow attitude. I think there are very few PCs with it available. IBM, I think, donated 25 copies of OS/2 to us for our PC support to get us familiar with it — but there is no production to my knowledge.

Are you waiting for the more advanced versions of OS/2?

Absolutely. To become accustomed to that, we are suggesting people use [Microsoft] Windows Version 2, and we are using it in our LAN with a number of applications.

Will the extensive memory requirements of running OS/2 be a problem because you're buying PS/2 Model 50s?

Yes, and I hope the shortage of memory chips today and high price pulls some companies back into the market, so when we're ready, the price is back down again.

Tell me a little about your data center strategies.

We have put in a Novell LAN, and it has 3270 gateways to our IBM mainframe and Transmission Control Protocol/Internet Protocol gateways to our DEC systems. Our strategy is to provide a model in the company of linking the PCs into the minis and mainframes, so that people can more easily move around information and perform the computing that is most cost-effective on the platform it is most cost-effective on, as opposed to being limited to a PC or a mainframe terminal or something like that.

Also, because we've added a lot of VAX systems — I think we're up to 73 today, which we've added over the last three or

four years — terminals and PCs with both DEC VT and 3270 capabilities are becoming very important to us.

What do you see as the future for micros compared with low-end workstations?

I actually see the low-end workstations as being much more capable and cost-effective today when compared with high-end PCs.

What are you doing in the artificial intelligence area?

We're trying to standardize on some tools. We're currently in the process of putting the finishing touches on an expert system to help people configure PCs in the company so that the user or one of our

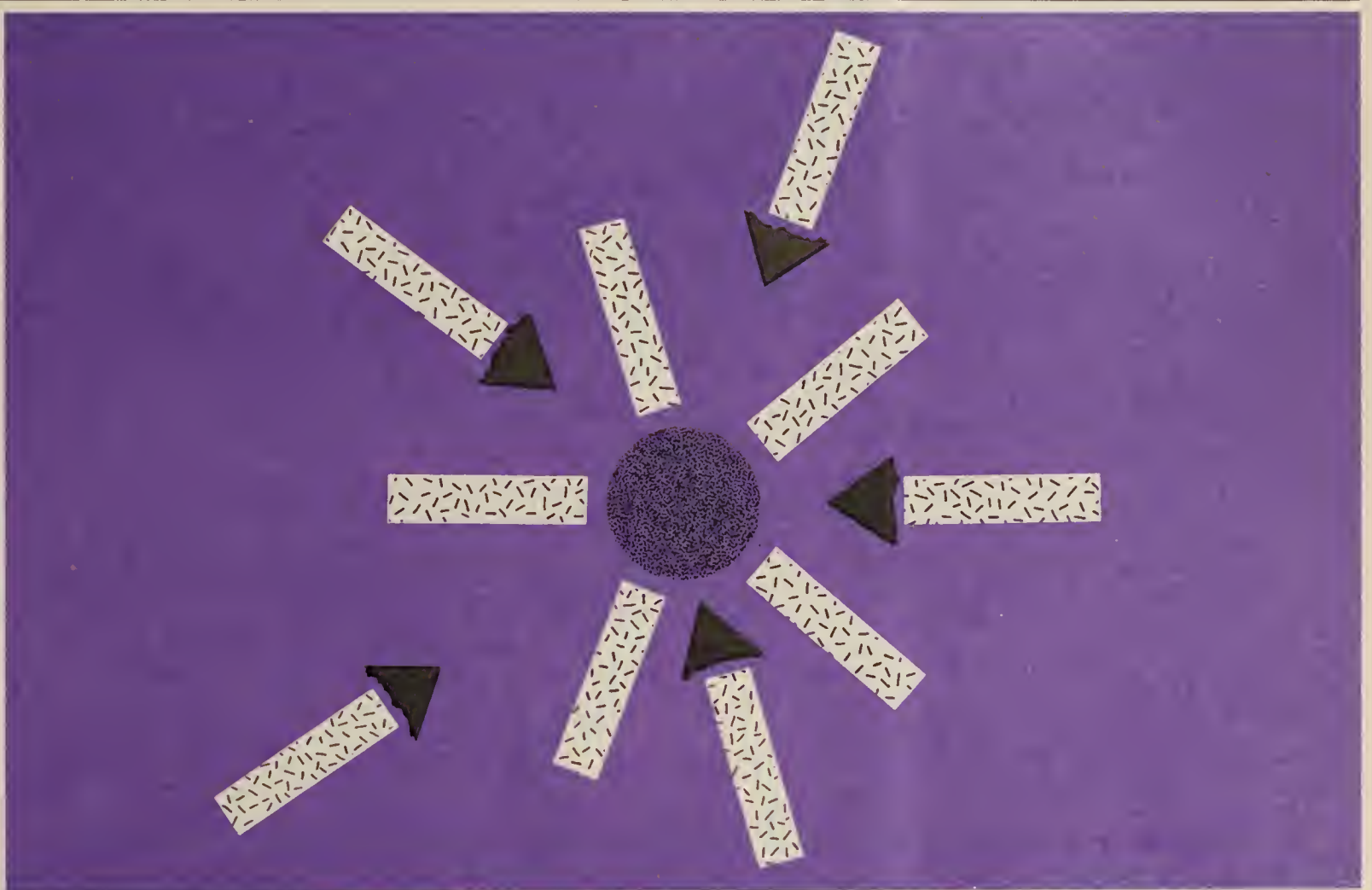
site coordinators could get on this application that will run on a VAX and go through a dialogue with the expert system and get a recommendation on what type of PC would fit their needs.

What are some of the challenges facing you?

Doing more with less people. It's been the posture of our MIS division for the last three or four years to hold or decrease head count and hold or decrease budget — yet to do more.

Is it working?

Some people feel overloaded, and some people who aren't hard workers look for employment elsewhere, but I think we're succeeding in what we're trying to do.



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Hard disks

CONTINUED FROM PAGE 27

extend the life of a drive in the bargain.

Microsoft Corp.'s MS-DOS operating system deals with disks in clusters. The trouble comes when MS-DOS stores, erases and then restores new files. Each cluster that is no longer needed because its file was erased is freed for use with another file. So after several write-erase sequences, there will be an odd lot of individual blank clusters mixed with clusters in use. When a new file is saved or copied, MS-DOS might put it on any number of clusters. Also, searches for that data may become longer and longer.

Because the MS-DOS 3 versions use a

better algorithm to choose clusters for a file than the MS-DOS 2 versions, they offer an advantage over the earlier systems. Both, however, can benefit from a defragmentation program.

Slow start

One of the first commercial defragmentation programs for the PC was Disk Optimizer from Softlogic Solutions, Inc. in Manchester, N.H. This program started out, as seems to be the case with all such programs, running rather slowly. Processing a 10M-byte old-style disk could take more than an hour. Fortunately, Disk Optimizer has sped up considerably.

In addition, the current version offers considerable user control in disk organization. Static files such as EXE or COM

files, which do not change often, can be grouped together at either end of the disk. Important directories can be given priority placement for faster access, and the ordering of directories and their sub-directories is automatically improved.

For users, particularly MS-DOS 3 users, who will not take the five to 20 minutes weekly required to keep their disks compressed and defragmented, Golden Bow Systems in San Diego offers another approach with Vopt. Vopt does not bother with every blank space between files; it only arranges all the file clusters to be contiguous. And it is fast.

Thus, Disk Optimizer will fine-tune a hard disk with great precision and high safety, and for users with self-discipline troubles who do not take the time to com-

press their disks, there is Vopt.

Even greater performance benefits can come from a good disk-caching program and a Lotus-Intel-Microsoft Enhanced Memory Specification (EMS) board. A disk-caching program will automatically and invisibly store files in random-access memory when they are first accessed and then retrieve them from RAM, not the disk itself, when they need to be reread. Such access is easily 50 times faster than disk reads, and about 75% of all system reads can ordinarily come from the cache.

I cannot prove that disk caches will extend the life of hard disks, but they arguably can double or triple the life of well-cared-for disks. Any system that is spared three-quarters of its reads and a substantial number of its writes must profit considerably from the reduction in work load.

Winners

Two particular cache programs are very capable. Flash, from Software Masters in Indianapolis, allows all types of fine-tuning by users. It also caches floppy disks. Flash will allow a RAM disk to be set up using cache buffers. The result is a cache of variable size and a very convenient RAM disk.

Vcache, from Golden Bow, is less sophisticated and adjustable than Flash but seems to be a bit faster and use up less memory space. However, Vcache will not cache floppy disks.

Slow drives can appear to operate faster through careful use of defragmentation and EMS caching. They are not the equal of something really fast, like the Core drives I tested them against, but small users that cannot afford more costly equipment can make do with them. And even the Core drives benefit from caching.

If the use of a defragmentation program and a cache system extend the life of a hard disk only from one to two years, the savings in the second year would pay for the EMS board and the programs. And the benefit of greatly increased disk access speed would have already been enjoyed for two years.

Elkins is a computer and management consultant with academic interests in advanced public-key data encryption systems.

VGA board

CONTINUED FROM PAGE 25

can have up to 512K bytes of video RAM with an option for an additional 256K bytes and a 256-color display.

The video RAM VGA board incorporates Fastwrite, a memory-caching mechanism that, when used in conjunction with the company's video RAM interfacing technology, takes full advantage of the performance benefits of on-board video RAM while maintaining compatibility with best-selling software programs.

The new board is 100% compatible with IBM's PS/2 Display Adapter and IBM's VGA product for the Personal Computer AT. The company claimed video RAM VGA is the only board to offer the IBM high-bandwidth monochrome mode and said this mode, which is undocumented, allows video RAM VGA to double the frequency of CPU memory access.

Video RAM VGA has a suggested retail price of \$799 and will be shipped next month, according to a Video Seven spokesman.

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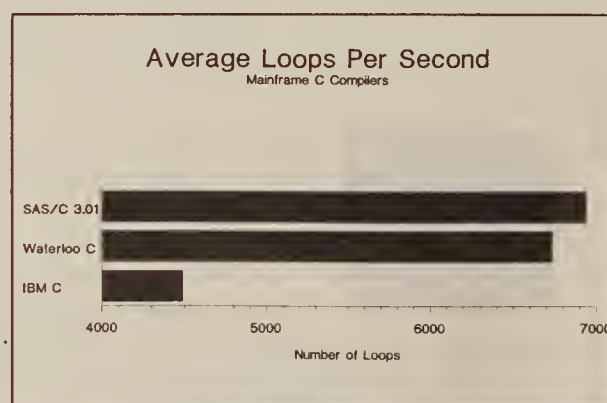
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 - 23. Dir., Mgr., Suprv., Analyst, of Systems
 - 31. Dir., Mgr., Suprv., of Programming
 - 32. Programmer, Methods Analyst
 - 35. Dir., Mgr., Suprv., OA/WP
 - 38. Data Comm. Network/Systems Mgt

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 - 13. Treasurer, Controller, Financial Officer
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 - 70. Medical, Legal, Accounting Mgt.
 - 80. Educators, Journalists, Librarians, Students
 - 90. Others

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C. Microcomputers/Desktops
D. Communications Systems
E. Office Automation Systems
F. No Computer Involvement

COMPUTERWORLD

Rosenthal

CONTINUED FROM PAGE 27

for more information. These users are substantially more sophisticated than those of a couple of years ago, when the PC movement first started — which means you get asked a lot of questions you wish you weren't.

Limited understanding

Conversely, we have a relatively unsophisticated understanding of OS/2's capabilities. Although OS/2 is physically here today, it doesn't really provide multitasking yet because of a lack of OS/2 applications.

OS/2 also has a limited ability to deal with today's DOS world. Did you know that the DOS compatibility window only works with well-behaved programs that do not address the hardware directly? And it will not allow access to extended or expanded memory and cannot run communications or networking products. Already there are expectations that you have to manage.

After a few users start to use OS/2, you will discover incompatibility problems you never even dreamed of. Whether it is determining configurations, getting all the applications software to work together or making an OS/2 machine work with the DOS environment of today, translating all your existing applications into an OS/2 world presents a monumental task.

In addition, applications that will be emerging for OS/2 are going to be infinitely more complex than those we're used to. There will be applications that work across groups; they will be more difficult to install, more complicated to build on and tougher to explain.

So why have the hassle today? Understandably, you may be inclined to delay worrying about OS/2 just yet and wait until next year or the year after, when everything becomes more clear. You've already got a full set of problems and don't need any more.

But you better get on the ball now.

Keep your customers happy

Remember, individual end users are ultimately your customers — the people that give you power in the organization. And your power is contingent on your ability to serve them well. Despite how painful it may seem, you've got to be the one who provides the OS/2 answers.

You've got to know what applications are out there and when they're really expected to ship. You've got to create realistic expectations for the users. Even if you don't have a lot of resources to do all this, you must commit to taking this position.

While you've got to become more future- and leadership-oriented, you also have to make sure that the support is done today. This means handling the support demands of today more efficiently.

There are plenty of outside options available. For openers, you can start relying more heavily on your vendors. Consider choosing a hardware manufacturer that is a technology leader and has the financial stability to be one of the survivors. Ask potential suppliers what service and support they are prepared to provide for the transition.

Select software products from vendors that have coherent OS/2 transition and upgrade strategies that will allow

compatibility and ease your move into the future.

Finally, ask yourself these questions about your PC product suppliers:

- Do they know about the OS/2 compatibility issues of today?
- Are they committed to investing the resources needed to maintain technical leadership?
- Can they provide timely and objective information that cuts across vendor lines?

And, most importantly, ask yourself if they can help you achieve the level of efficiency you need today so that you can provide leadership for tomorrow.

Rosenthal is chief executive officer and chairman of the board of Corporate Software, Inc. in Westwood, Mass.

Paradox

CONTINUED FROM PAGE 25

been named, will also support SQL commands for connection to other data bases, Kahn said.

The Paradox engine will contain hooks to which the Turbo languages link. By tying into the stripped-down Paradox program, Turbo language developers can create applications with some of Paradox's powerful features, including querying, sorting and indexing, Kahn said. Routines written with the Turbo languages can be combined with current programs written in PAL through Paradox's DOS Link command.

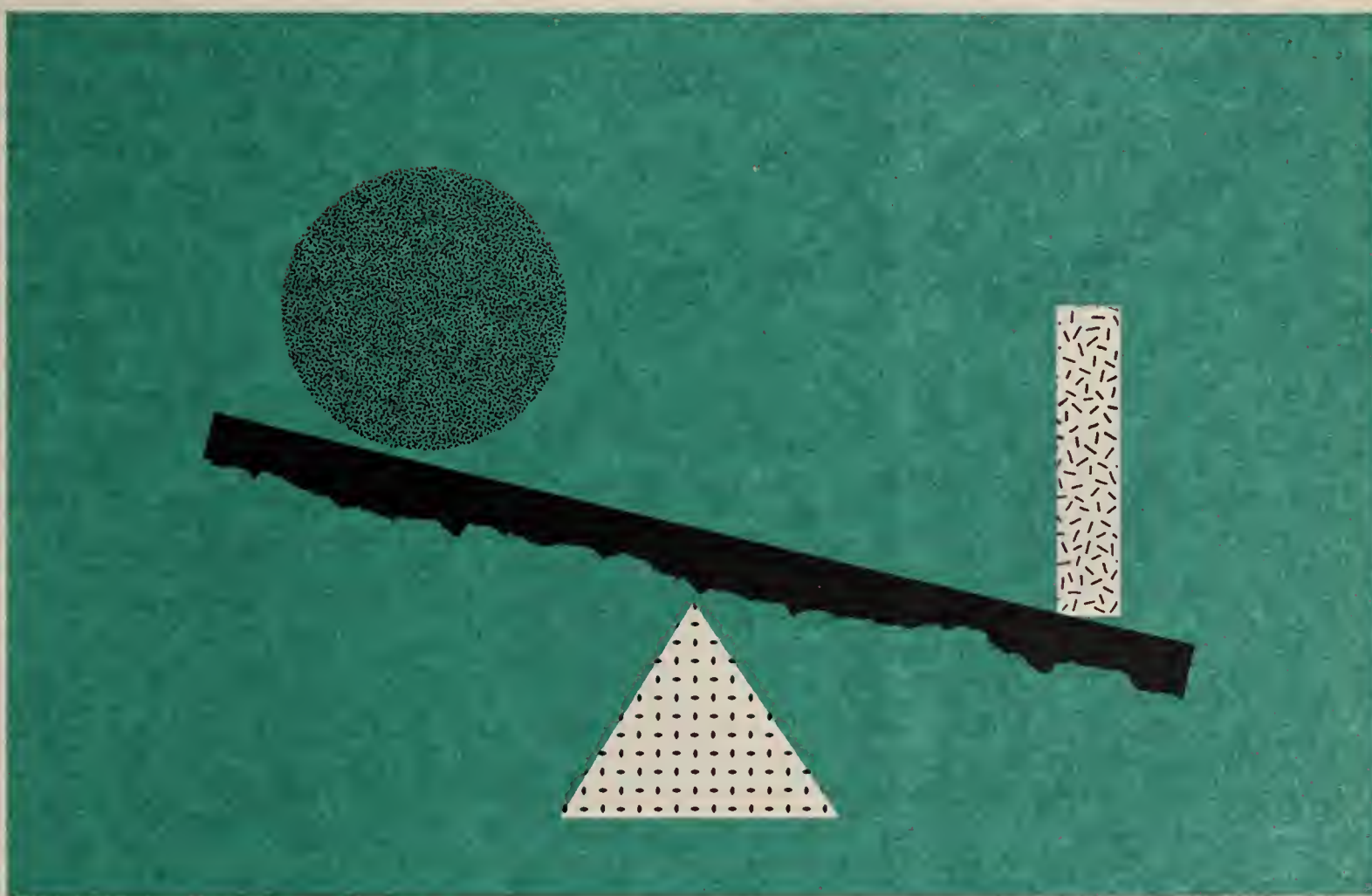
Pricing and availability were not dis-

closed by the vendor.

Kahn said the product is aimed directly at Ashton-Tate Corp.'s upcoming Dbase IV, which he said offers developers only limited programming language choices. The new Paradox version will also help Borland integrate the data base into its existing product line, according to Kahn.

But analysts questioned the idea of Borland stripping away Paradox's PAL and leaving the product without its own full programming language.

"Hooking the compilers into Paradox is a good idea, but as a true relational data base, it would make more sense if they leave the [PAL] macro language intact," commented Bill Higgs, director of software research at Infocorp in Cupertino, Calif.



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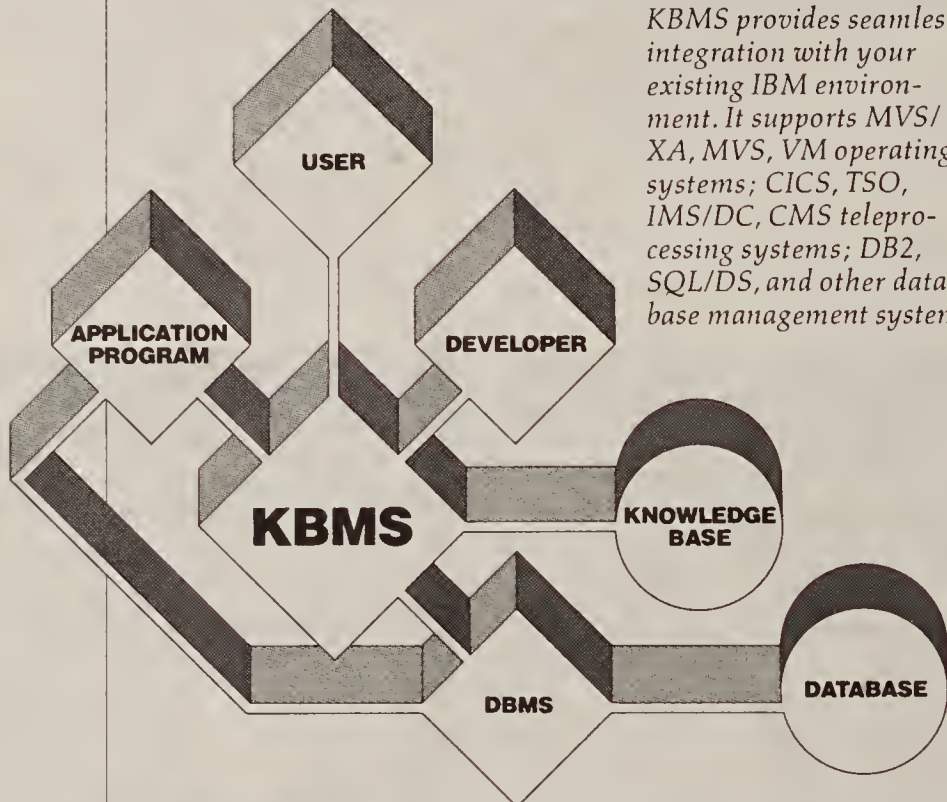


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Barney

CONTINUED FROM PAGE 25

ever, ended up on the downside of that debate.

Shunning Codd and Date's 12 rules of relational, MDBS still adheres to the extended network data base management system model, which maintains the lion's share of mainframe production data bases. Although mainframers are moving toward relational SQL products, many users have been wary of shifting production data away from the tried and true.

On the micro side, it will take time for SQL and fully relational to supersede other data base architectures, however inevitable this move may be.

According to Leininger, the extended network approach has particular strengths, especially in production-style applications. Leininger says personal computer-based systems addressing hundreds and hundreds of megabytes of nonredundant data that also require more than 100 relationships are beyond the scope of today's relational micro systems.

As you might have guessed, Leininger's proposed solution is his own product, MDBS III, which he said can directly model many-to-one, many-to-many, one-to-one, one-to-many and forked and recursive relationships without extra coding or dummy records.

There is no doubt that products such as MDBS III have served users well. But the argument that extended network architectures are more effective than relational products in some hard-core data bases should very likely generate controversy.

We hope this is not the last word on the subject and are willing to allow this column to serve as an informal forum for the variety of opinions concerning the optimum data base architecture of today and tomorrow. Gimme a call.

I have to get permission to buy a cheaper machine? This is the kind of deal we could learn to love. At Coca Cola Foods, you need a good excuse to not buy an Intel 80386-based machine. Cheryl Currid, who manages micros at the carbonated beverage and snack-food giant, says the 386 can support the software coming down the pike more effectively than Intel 80286 machines, which still suffer from a mild case of brain damage. If users want to buy a 286 machine, they better have a darn good reason, Currid says.

Please, can I get a Leading Edge Model D with floppy disk drives and a monochrome monitor? Well, OK. I guess I'll take the Compaq Deskpro 386 if I have to.

A darn good idea. Software developers sometimes decide to sue each other for copying a user interface, and know-nothing judges sometimes decide if these vendors are right. But it is users who ultimately suffer when innovation is stifled due to fear or when a key vendor is hurt by a lawsuit.

Frank Diasparra, vice-president of the advanced technology group at Fidelity Investments in Boston, thinks it is time users have their say. "I would like to see the user community get involved in that scenario. We have businesses to run and have to exploit technology," Diasparra says. You know what most users would

say about these suits: Enough!

The absurdity of nondisclosure. We are noticing a disturbing trend among software developers. In what have sometimes progressed into orgies of preannouncements, these vendors introduce products to the world that will not ship for six months, a year, two years or more. Then customers or interested journalists who want to get a peek at the product have to sign a nondisclosure agreement and promise not to talk about it. Let me get this straight. I have to sign an agreement to not talk about a product you just talked about? Egads.

Barney is a *Computerworld* senior editor, micro-computing.

Emerald Bay

CONTINUED FROM PAGE 25

Village-based Migent, which started shipping Emerald Bay at least three months before Ashton-Tate was scheduled to release its Dbase upgrade, called Dbase IV. Ratliff said he was concerned that the specter of a lawsuit would otherwise have had a chilling effect on potential users.

"When you know there's a lawsuit going on, everybody worries that if the vendor loses the lawsuit, you might have to give everything back," he said.

Ratliff said the lawsuit has been a frustrating experience for him and Migent, slowing the development of Emerald Bay. Ashton-Tate officials would not comment

on the suit, but Ratliff claimed Ashton-Tate's allegations of trade secret infringement were groundless.

"This whole thing started because Ashton-Tate took rumor and fragments of fact about Emerald Bay, assumed a worst-case scenario and built a lawsuit around it," Ratliff said.

Emerald Bay, which runs under Microsoft Corp.'s MS-DOS, will eventually allow multiple applications to share data simultaneously in both single and multiuser environments, according to Migent.

The first pieces to ship will be the data base engine itself; a \$495 C tool kit; a \$195 Lotus Development Corp. 1-2-3 add-in called Summitt; and Eagle, a \$495 Dbase-like programming language. SQL support will come later, Migent said.

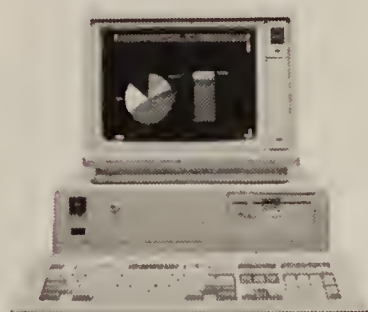
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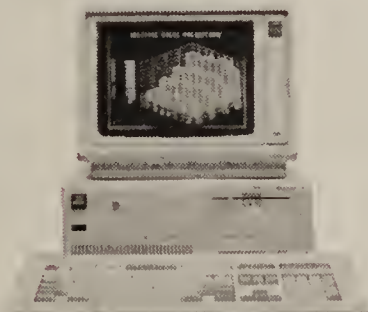
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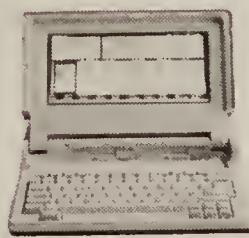
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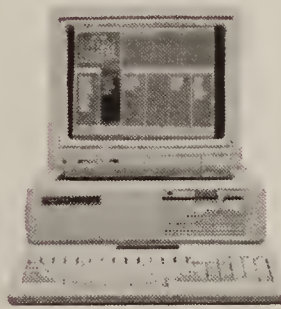
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A graphics tablet for use with personal computers and computer-aided design (CAD) workstations has been announced by Hewlett-Packard Co.

Called **HP Sketchpro**, the tablet comes with such accessories as a stylus, a four-button cursor, an HP Vectra PC-IBM Personal Computer AT serial interface cable; a PC AT adapter cable; Microsoft Corp. Mouse driver files; a CAD menu-overlay hold-down/protector; and set-up

instructions for third-party PC CAD software applications, including Autodesk, Inc.'s AutoCAD.

Resolution is up to 480 lines per centimeter with accuracy within 0.5mm of the selected point and repeatability of 0.25mm.

The tablet has an active area of 11 by 11 in.

The HP Sketchpro is priced

at \$649.

HP, 1820 Embarcadero Road, Palo Alto, Calif. 94303. 800-367-4772.

A device designed to allow IBM Personal System/2s and Personal Computers or compatibles to drive high-speed laser printers has been announced by **Spur Products Corp.**

The **Universal Subsystem**

Adapter/PC drives laser printers made by Datagraphics, Hewlett-Packard Co., IBM, Eastman Kodak Co., NCR Corp., Siemens AG and Storage Technology, Inc. The product also drives ion deposition printers from Xerox Corp.

According to the vendor, no enhancement boards or software changes are necessary. The adapter is rack-mountable.

The Universal Subsystem Adapter/PC costs \$9,000.

Spur Products, 13469 Beach Ave., Marina Del Rey, Calif. 90292. 213-822-7100.

A 300 dot/in. flat-bed scanner for use with the Apple Computer, Inc. Macintosh has been announced by the Apple Products Division of **AST Research, Inc.**

The **Turboscan** scanner is said to give Macintosh users the capability of scanning bound documents and three-dimensional objects at 300 dot/in. resolution. It accepts documents and objects any size up to 8½ by 14 in., the vendor said.

The flat-bed Turboscan costs \$1,899. AST has also reduced the price of its Turboscan sheet-feed model to \$1,699.

AST Research, 2121 Alton Ave., Irvine, Calif. 92714. 714-553-0340.

Imagen Corp. has announced its **PC Publisher Kit Series II**, a desktop publishing package that supports the Hewlett-Packard Co. Laserjet Series II line of laser printers.

The PC Publisher Kit Series II is composed of a raster image processor on a card that resides in an IBM Personal Computer or compatible. It provides all desktop publishing functions, including full-page graphics and font capabilities. Other features include a standard set of 22 typefaces and a utility package. The kit costs \$1,995.

Imagen, P.O. Box 58101, 2650 San Thomas Expwy., Santa Clara, Calif. 95052. 408-986-9400.

**Board-level
devices**

Two plug-in floating-point array processor boards for IBM Personal Computers, PC XT's, AT's and compatibles have been announced by **Communications Automation & Control**.

The boards are based on AT&T's DSP32 single-chip floating-point digital signal processor. An applications library callable from the C language provides such routines as optimized math, matrix manipulation, signal processing, image processing and graphics.

Two versions are available: one for the XT and one for the AT. Prices start at \$695.

Communications Automation, 2348 Eden Lane, Bethlehem, Pa. 18018. 215-865-9706.

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Photo: Baxter Health Care Corp. data center, a CA-OPERA user.

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U 5000/30

This model is built around the Motorola 68020 processor at 16.6 MHz. It supports 16 users. Max memory: 8 MB; max storage: 820 MB.

U 5000/35

Motorola 68020 processor at 25 MHz. 32 users. Max memory: 8 MB; max storage: 4.4 GB.

U 5000/50

Motorola 68020 processor at 16.6 MHz. 64 users. Max memory: 16 MB; max storage: 2.3 GB.

U 5000/55

Motorola 68020 processor at 25 MHz. 64 users. Max memory: 16 MB; max storage: 4.8 GB.

U 5000/70

Multiple Motorola 68020 processors at 16.6 MHz. 128 users. Max memory: 36 MB; max storage: 4.2 GB.

U 5000/80

Multiple Motorola 68010 processors at 12.5 MHz. 64 users. Max memory: 16 MB; max storage: 3.8 GB.

U 5000/85

Multiple Motorola 68020 processors at 25 MHz. 80 users. Max memory: 64 MB; max storage: 1.8 GB.

U 5000/90

Multiple Motorola 68020 processors at 12.5 MHz. 128 users. Max memory: 64 MB; max storage: 7.9 GB.

U 5000/95

Multiple Motorola 68020 processors at 25 MHz. 128 users. Max memory: 64 MB; max storage: 8.1 GB. Top of the U 5000 Series.

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The U 7000 Series is the most powerful UNIX system we make. They were developed with scientific and engineering needs in mind. The U 7000/40 handles 240 users. Max memory: 32 MB; max storage: 16.5 GB.

U 7000/50

The U 7000/50 handles 100 users. Max memory: 32 MB; max storage: 16.5 GB. Single high-performance processor system which can be field upgraded to U 7000/51 and dual-processor U 7000/52 systems.

U 7000/51

Same as the U 7000/50, but with additional cache memory to provide even higher processor performance. U 7000/51 can support up to 240 users.

U 7000/52

Same as the U 7000/51, but with dual processors. U 7000/52 can support up to 384 users.

REASONS 14-17:

Having Unisys in your shop means:

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REASONS 18-26:

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The power of 2

NETWORKING

DATA STREAM

Kathy Chin Leong

Just stick to the specs



It happens all the time. We want to get the most bang for the buck, so we cheat — only to discover we are

cheating ourselves. One East Coast bank recently learned this lesson the hard way.

After installing a backbone Ethernet network that ran through all 40 floors of a single building, one group of users wanted to add another segment of cable to bring their colleagues into the net. Gradually, other users in the building noticed that response time on the network was slowing down. It got so bad that some users had to wait so long when trying to access a file that their terminals would take a time-out, requiring them to log on again.

The network manager was getting complaints left and right. Unaware of what was wrong, she took an inventory of every node, every length of cable, every tap and concentrator on the local-area network. Eventually, she realized that the addition of the extra cable segment had made the total end-to-end network a little longer than recommended under the original Ethernet specifications. In effect, the network had been stretched beyond its capacity.

"Never again," she told me ashamedly. "From now on, we stick to the specifications. We thought that we would be able to add a little bit here and there."

Continued on page 39

Hospital net skirts roadblock

AT&T switch links many vendors' LANs, computers in building complex

BY JEAN S. BOZMAN
CW STAFF

CHICAGO — Two years ago, Rush-Presbyterian St. Luke's Medical Center began a \$4.2

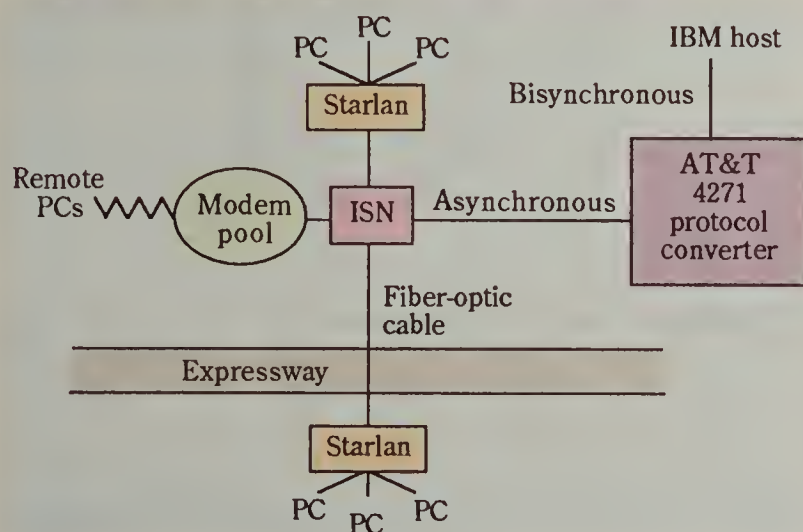
million project to install a data networking system for its hospital complex, which stretches across the Eisenhower Expressway here. The six-lane road literally separates the hospital cen-

ter from an office building that handles many of the center's administrative tasks — including data processing — thus creating a formidable obstacle to the plan's success.

The problem of how to connect the two sides of the hospital complex was solved by installing a fiber-optic cable alongside one of Chicago's famed elevated train tracks.

Rush eyes ISN as PC-to-mainframe link

AT&T's Information Systems Network data switch beats IBM 3174 on cost per connection



CW CHART

At the heart of the data network is an AT&T Information Systems Network (ISN) switch, located in the office building's computer room. Together, the System 85 and the ISN switch cost Rush approximately \$4 million.

Supporting a total throughput of 8M bit/sec., the ISN routes transmissions along Rush's network installation on both sides of the expressway. Multiple IBM Token-Rings, Digital Equipment Corp. Decnets and several 1M bit/sec. AT&T Starlans link users throughout Rush's building complex.

The ISN also acts as a gateway to the outside world for a DEC Vaxcluster, which is used for laboratory applications that can send data to an IBM 3083 mainframe. "The laboratory system runs on Decnet, which is wired throughout the laboratory," explained William Wellman, assistant vice-president of administrative affairs, who oversees telecommunications at Rush.

Because the ISN is indifferent to what type of data it passes along, it can interconnect Rush's

Continued on page 37

Telematics promises DEC-IBM gateways

BY PATRICIA KEEFE
CW STAFF

FORT LAUDERDALE, Fla. — Telematics International, Inc., a supplier of wide-area packet-switched networks, shifted gears into the IBM-to-Digital Equipment Corp. connectivity market with last week's launch of its Network Access Products division.

The division will develop and market gateway systems designed to link IBM, DEC and

Open Systems Interconnect (OSI)-based equipment to private or public packet-switched networks.

"There has not been a lot of activity in this area using a packet-switching type of approach," said Clare Fleig, director of research at International Technology Group in Los Altos, Calif. "IBM has been real slow about bringing X.25 into Systems Network Architecture, but that is changing," she added, predicting growing interest in providing

packet switching as an alternative to IBM's Synchronous Data Link Control (SDLC).

During the next several years, Telematics said it will introduce a series of IBM and DEC access products, including IBM's Advanced Program-to-Program Communications and Distributed Network Architecture Decnet servers as well as protocol conversion tools.

However, initial product offerings do little more than link each environment separately to a packet-switching network. Specifically, Telematics is scheduled to introduce:

- An IBM Systems Network Architecture (SNA) packet assembler/disassembler (PAD) for linking IBM 5250 and 3270 ter-

minals to multiple IBM hosts over a standard CCITT X.25 packet network. It is slated for release in August at prices ranging from \$4,000 to \$10,000.

- A DEC VAX front-end processor and a VAX PAD. The processor will be able to handle up to four VAX hosts using a standard

Continued on page 36

Inside

- Proteon breaks ground with TCP/IP connectivity device. Page 36.
- Host of products blow into Chicago for Interface '88. Page 39.
- Link for DEC, IBM systems debuts. Page 40.

Warning: Bargains can be hazardous to your network.

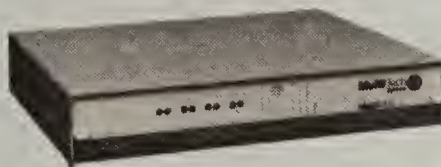
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Proteon supports LAN-to-LAN TCP/IP

BY ELISABETH HORWITT
CW STAFF

WESTBORO, Mass. — Proteon, Inc. last week introduced what it claimed is the first commercial product to support a recently approved Transmission Control Protocol/Internet Protocol (TCP/IP) standard for managing LAN-to-LAN connectivity devices.

This latest generation of Proteon's P4200 Router series also provides significant performance improvement over earlier models, Proteon claimed.

The updated P4200 Router supports the TCP/IP Simple Gateway Management Protocol (SGMP) that allows an operator at a central workstation to monitor, reconfigure and collect information from local-area net-

work gateways, bridges and routers, Proteon product marketing manager Michael Scully said. By allowing users to monitor and troubleshoot LAN interconnectivity devices, the system addresses an increasing demand for reliable long-distance connections between LANs, Proteon

Chairman Howard C. Salwen said.

Built around a Motorola, Inc. 68020 microprocessor and a new code structure, the revised P4200 reportedly provides twice the throughput of the older model. Increased buffer space enables the revamped router to

more effectively handle high-speed workstations that send multiple data blocks in rapid bursts, Scully said.

The P4200 interconnects multiple IEEE 802.3 Ethernet and 802.5 token-ring LANs as well as Proteon Pronet-10 and Pronet-80 token-ring LANs. It provides inter-LAN routing for transmissions generated by TCP/IP, Digital Equipment

Corp. Decnet and Xerox Corp. Network Systems nodes.

LANs can be connected in a local or campuswide environment, over Proteon's Pronet-80 high-speed fiber-optic backbone; long-distance linking over dedicated 56K or 1.5M bit/sec. T1 lines is also possible, Proteon said. The latest version is scheduled for volume shipment this month at a price of \$7,900.

Telematics

FROM PAGE 35

DEC interface under the VAX/VMS operating system and is available now for \$40,000 to \$100,000.

The VAX PAD will aid multi-site VAX users who need to support remote terminals over X.25 networks.

The VAX PAD is available now for \$15,000 to \$60,000.

- The Smartnet 4000 series family of asynchronous, SNA and X.25 PADs.

These products reportedly provide SDLC-to-Quality Logical Link Control protocol conversion to allow the transport of SNA transactions over switched networks.

Smartnet 4000 is available immediately and costs \$3,000 per unit.

- The Series 5000, a family of programmable backbone packet switches said to offer two to three times more data throughput than the older Telematic Net25 line of switches.

The Series 5000 family uses Motorola, Inc. 68020 chips with 64K bytes of on-board cache memory to provide data throughput in excess of 2,000 packets per second. Slated to be available in June, Series 5000 prices will range from \$78,500 to \$200,000.

In addition, Telematics said its network access strategy will focus on development of OSI transport and session layer communications servers. Using this capability, Telematics said it will also develop message-handling systems based on the CCITT X.400 electronic mail standard.

Also reported to be in the works are a line of multifunctional terminals, communications tools and applications servers that will provide protocol adaptation and conversion as well as applications access.

SQL
Performance
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challenges
anyone.

Hospital

FROM PAGE 35

broad range of computer systems. These include the 3083, a Vaxcluster based on three VAX 8500s, three Tandem Computers, Inc. TXP processors, an AT&T 3B Model 400 hosting Starlan and another AT&T 3B5 attached processor.

Soon to be included is a Prime Computer, Inc. 9955 to be used by administration.

"We're trying to stay flexible because a lot of the hardware decisions that are made here are determined by the kind of packaged software available," Wellman said.

It was a proliferation of buying decisions during the 1970s and early '80s that led to the va-

USERS are closer to one-stop shopping for their laboratory data than ever."

WILLIAM WELLMAN

RUSH-PRESBYTERIAN ST. LUKE'S MEDICAL CENTER

riety of host systems populating the Rush campus today, he added.

Rush had considered building its data network around IBM's Systems Network Architecture

— except that the SNA system would have cost approximately twice as much as the ISN network, Wellman said. Overall, he looked at 75 bids.

Room for expansion

AT&T's PDS wiring scheme can handle many times the traffic currently supported, according to Wellman, leaving room to expand the current networking installations.

To keep data transmission costs low, Rush is considering the idea of using an AT&T 4271 asynchronous controller, which is already attached to the ISN switch, to provide IBM host access to thousands of IBM Personal Computers around the Rush campus and hundreds more in remote locations.

The organization currently uses IBM 3174 cluster controllers that support far more costly bisynchronous connections between PCs and IBM mainframes.

As a result of Rush's networking scheme, most end users can access data from a variety of hosts without worrying about compatibility problems.

"Users are closer to one-stop shopping for their laboratory data than ever before," Wellman said.

"They can go to their IBM PC, log onto the DEC-based laboratory system and get the same results as they would from a DEC VT220 terminal," he added.

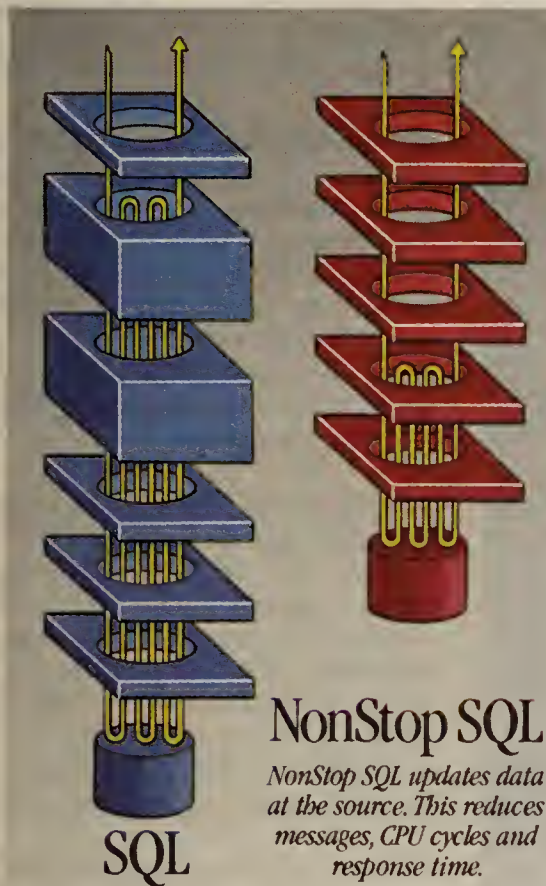
Rush's Medical Decision Support Systems software group is developing multifunction terminals that will be able to automatically log on to several of the Rush host systems.

"We have smarts in the PCs in the form of terminal emulators that know how to create an end-to-end circuit," Wellman said. "Eventually, we'll assign different classes of data access according to the type of end user assigned to the machine." Many of the machines will end up on patient-care wards of the hospital center.

"We're positioning ourselves strategically to serve the physicians who make their rounds here at the medical center," said Richard T. Shirey, director of Medical Decision Support Systems. "We want to create a system that will allow them to access patient data and laboratory results from their IBM PC before they ever go on their rounds."

Networking has also brought updated mainframe data closer to in-house PC users.

"Before ISN, users had to ask us to update their data files overnight," said Hooman Bahmandeji, network communications manager for Shirey's group. "Now, they can call up the data themselves." The year-old networking scheme has already provided a qualitative improvement for Rush staff members, Bahmandeji said.



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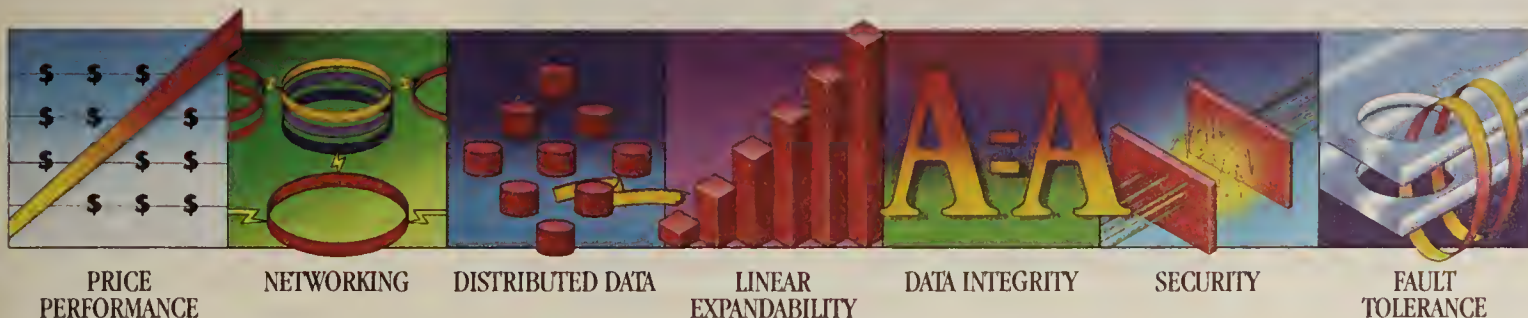
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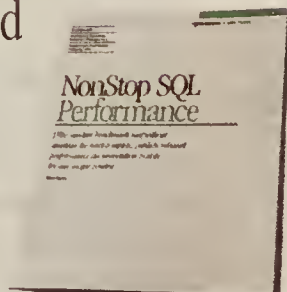
user, the entire database will look like a local database.

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ISDN Task Group formed

The Manufacturing Automation Protocol/Technical and Office Protocol (TOP) Users Group has formed a TOP Integrated Services Digital Network (ISDN) Task Group whose major goal will be to seek ways to integrate ISDN with the ISO's Open Systems Interconnect standard. The task group will work closely with a special interest group of the National Bureau of Standards Implementors Workshop, which is working on developing vendor implementation agreements for ISDN protocols.

Waterloo Microsystems, the develop-

er of the Port network operating system, will shortly unveil a strategy for IBM OS/2 connectivity that includes support for OS/2 servers and clients, Microsoft Corp. MS-DOS and Port software over the same network. A Waterloo spokesman said the firm's approach will more closely mirror that of Novell, Inc. and Banyan Systems, Inc. than that of 3Com Corp., which chose to build the LAN Manager into its software.

The success of Spectrum Concepts' Xcom 6.2 file transfer software link to the Apollo Computer, Inc. Domain worksta-

tion has Spectrum working overtime porting the tool to other Unix-based machines. A product developer at the company says the firm is working on "quite a few other ports," including hook-ups to Apple Computer, Inc.'s Macintosh II and to Sun Microsystems, Inc. and Prime Computer, Inc. machines. Xcom 6.2 is a family of turnkey software products that use LU6.2 to provide peer-to-peer data transfer among disparate machines.

The ink is reportedly drying on a pact between Wang Laboratories, Inc. and neighbor Banyan. The agreement allows Wang to resell Banyan's Vines network operating system with Wang's VS mini-computers. The idea, a source close to Wang said, is to enable a VS to function as

a departmental server and stave off any sales lost to personal computer networks. Banyan already supports Digital Equipment Corp.'s VAX.

The American National Standards Institute recently approved a draft proposal for a standard way for divested Bell operating companies to transport information over fiber-optic links. Last week, Bell Communications Research proposed a related protocol, called Synchronous Optical Network (Sonet), that would standardize the way user equipment transmits over such fiber-optic connections. If Sonet is approved, the local carriers will be able to support broadband applications such as full-motion video and interactive graphics, Bellcore said.

Communications Satellite Corp. (Comsat) has obtained Federal Communications Commission approval for a new tariff that will reduce rates for overseas satellite-based transmission services offered by its International Business Service. The biggest rate cuts will apply to multiyear customer contracts and will range up to 17.3%, based on geographic region and frequency.

ACS Network Systems, a supplier of electronic data interchange (EDI) software for IBM System/36 and 38 computers, has signed a distribution agreement with J. D. Edwards and Co. in Denver. In response to customer requests, J. D. Edwards will distribute ACS's EDI/38 data communications and translation software in conjunction with its own financial and wholesale distribution systems software.

Silicon Graphics, Inc. has joined approximately 20 Unix computer vendors in support of Technology Concepts, Inc.'s Community as a way to link up with Decnet. Silicon Graphics will begin shipping the Decnet Phase IV-compatible software under the product name 4DDN in July.

Rabbit Software Corp. recently announced Rabbitscript, a high-level language interpreter said to allow users to write interface programs for the Rabbitgate local-area network gateway and the Rabbitstation IBM 3270 emulation product. Rabbitscript automates operator tasks, including data entry; watches for screen updates; and transfers data to or from sessions and local personal computer files. Rabbitscript is included in Rabbitstation or can be ordered as an option for Rabbitgate. List price is \$150 per workstation.

Wang VS customers have been offered the Wangpac Dataconnect Service, a special pricing structure for Wangpac value-added network users seeking to connect only to the data bases offered over the network. The service fee is \$750 per month, with \$1.50 discounted for every connect hour to any data base.

The Ohio Co., a Columbus, Ohio-based securities firm, has contracted with Tridom Corp. for a \$1.5 million satellite-based data network linking the firm's branch offices to its headquarters. Tridom's Clearlink Ku-band network will provide high-speed interactive data and video communication networking, as well as integrated broadcast data services, to brokers, clerical and management personnel.



*There's a new bridge
into Manhattan...
the ACS 4030*

"The ACS 4030 dramatically cut our communication costs and maintained reliability - at a quarter the price of other Ethernet bridges."

Charles Fischer

Director of Operations, Dalcomp, Inc.

Dalcomp, a supplier of online information for the financial industry, needed a better way to connect offices on both sides of the Hudson.

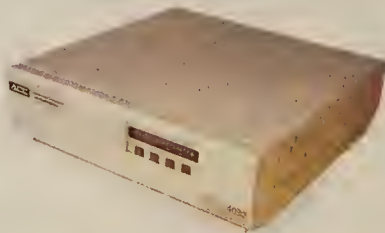
Dalcomp had five point-to-point connections using expensive dedicated lines. Dalcomp needed to cut network costs, but couldn't afford to sacrifice network performance. Dalcomp chose the ACS 4030 to connect Ethernets already in place.

Dalcomp saved on equipment costs and cut network charges by 60%. Dalcomp looked into another remote bridge; it was four times as expensive. Dalcomp saved by choosing the ACS 4030 and saved again by reducing the number of dedicated lines from five to two. The ACS 4030 can save you money too.

Saving money doesn't mean sacrificing reliability. Says Fischer, "In our business, we deal directly with major financial institutions. Our service transmits crucial information and we cannot have a down time." Because the ACS 4030 provides load-leveling, if one

critical line goes out, the others automatically pick up the slack.

The ACS 4030 fits into your existing system. No need to buy other expensive equipment. And ACC has been developing and supporting networking systems for over 12 years. If you need to connect Ethernets across a river, a parkway, or an entire state, the ACS 4030 can bridge the distance and cut costs, not performance. Call ACC today.



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The Interconnectivity Source

Product barrage at Interface

BY PATRICIA KEEFE
CW STAFF

CHICAGO — Situated out here in the Windy City, Interface '88 served as the launching pad for a whole host of communications products.

T1 links and packet switches.

• Newbridge Networks, Inc. in Herndon, Va., announced the 4602, a more powerful model of its network management system based on a Sun Microsystems, Inc. workstation. The product provides centralized monitoring and diagnostics for Newbridge's T1 multiplexer line. The software costs \$50,000 for a single license.

Also introduced by Newbridge was the 3630 multiplexer, base priced at \$8,000, which supports two T1 channels; and the high-end 3645 switch, said to support up to 256 T1 links or four 45M bit/sec. T3 links. Pricing for the 3645 was unavailable.

Both products can interface with Digital Access and Cross-Connect System-compatible carrier services. They are equipped with T1 circuit cards that reportedly can support 12 Integrated Services Digital Network (ISDN) Basic Rate Interfaces, each of which is made up of two 64K bit/sec. digital channels.

• Telematics International, Inc. in Fort Lauderdale, Fla., introduced the Series 5000 line of programmable network backbone packet switches. The processors are said to offer two to three times more data throughput than is currently obtainable from Telematics' 25Net line. With data throughput estimated in excess of 2,000 packet/sec., Series 5000 models range in price from \$78,500 to \$200,000.

• Tymnet, McDonnell Douglas Network Systems Co. in San Jose, Calif., introduced a CCITT X.25-to-Synchronous Data Link Control conversion feature for its packet-switching network service. The feature is said to allow IBM 3270 and 5250 terminals and hosts to communicate over Tymnet's X.25 network.

• Transtream, Inc. in Augora Hills, Calif., released the T-1000 Data Unit, said to provide access to the circuit-switched digital network through Northern Telecom,

Inc.'s DMS-100 central office switch or SL-100 private branch exchange. The T-100 reportedly supports full-duplex, synchronous data transfer at speeds up to 64K bit/sec., or 19.2K bit/sec. asynchronous. A combination of applications packages provides support for different dialing protocols.

• Data Switch Corp. in Shelton, Conn., unveiled the Model 9015 host channel extender, which directly connects peripheral control units to an IBM or plug-compatible mainframe over 1.5M bit/sec. T1 links, enabling users to bypass front-end processor bottlenecks, the vendor said. Scheduled for shipment in September, the product is priced at \$85,000 for the first link and \$75,000 for additional links.

ISDN.

• Progressive Computing, Inc. in Glen Ellyn, Ill., introduced two IBM Personal Computer-based products for ISDN developers and users: A protocol analyzer for the ISDN Basic Rate Interface and a terminal adapter said to allow the use of existing telephone installations to send voice and data over ISDN systems.

Fiber-optic networks.

• RAD Data Communications, Inc. in Rochelle Park, N.J., unveiled Fonet, a fiber-optic Ethernet-compatible product with the IEEE 802.3 standard. The network supports 10M bit/sec. data transmission and can be integrated with regular coaxial or twisted-pair Ethernet installations, the vendor said. The product comes in a six-channel star priced at \$3,660 and a 12-channel star priced at \$5,460. Also available is a fiber-optic transceiver, priced at \$595, which interfaces a workstation or another network to Fonet. Synchronous-link signaling eliminates the need for repeaters, so the network can be configured to support successive layers of backbones over a total area of 45 times that of coaxial Ethernet, according to RAD.

• BICC Data Networks of Westboro, Mass., introduced the Isolan family of fiber-optic networking products. The 1180 fiber-optic transceiver is priced at \$595, the 1150 fiber-optic repeater is priced at \$1,195, the 1126 fiber-optic multiport repeater is priced at \$6,800 and the 1160 fiber-optic hub is priced at \$4,750.

Quadram hooks PS/2 to mainframe

BY JAMES DALY
CW STAFF

NORCROSS, Ga. — Quadram Corp. entered the IBM Personal System/2 micro-to-mainframe market with its recent introduction of Mainlink IIM, a version of its Mainlink II 3270 emulation board that takes advantage of the PS/2's Micro Channel architecture.

Although Mainlink IIM is competing in a crowded field, Quadram said it is confident it can shake market share from other Micro Channel-based 3270 emulation boards such as Digital Communications Associates, Inc.'s (DCA) industry-leading Irma board and similar products from IBM, Attachmate Corp., CXI, Inc. and Ideassociates, Inc.

Mainlink IIM's major selling points are its price and its compatibility with established terminal emulation boards, Quadram said. Because the product is compatible on an interface and hardware level

with the Irma board and IBM micro-to-mainframe boards, it runs applications written for those vendors' products.

Additionally, no DIP switches need to be set when jumping between IBM and Irma applications running on Mainlink IIM. "You run Irma software one day, and tomorrow, when you want to run IBM, you don't have to go in and pull the cover off your PC and flip a DIP switch," said Bruce Watson, division manager for communications products at Quadram.

Mainlink IIM is available immediately and is priced at \$495. A version featuring Quadram's emulation and file-transfer software is scheduled for availability later this month for \$645. In contrast, DCA's PS/2-compatible Irma board retails for \$1,195, and IBM's PS/2-compatible product costs \$595 and requires up to \$500 worth of software, depending on configuration, said Noreen Powell, an account manager at the Nynex IBM Product Center in Natick, Mass.

Leong

CONTINUED FROM PAGE 35

She now realizes that when you cheat, while you may not notice problems right away, other areas on the network might be impacted, and you won't know why.

"It's not like adding another extension cord to the television set cord because it's too far from the wall. Networks are very fragile and sensitive," one consultant stressed. Yet experts and technical support people out here in LAN Land tell me that a lot of users are still green when it comes to putting together networks — and this often causes trouble.

Running on empty?

There are, of course, legitimate reasons why users are stretching the specifications. And sometimes, you can get away with adding more nodes to the network than are recommended, because certain specs tend to be conservative in nature. But that isn't always the case. It's like driving a car past the empty-gas mark to see how far you can go. Chances are, you won't get that far before the whole thing stops.

Networks are sensitive critters. If you feed them the wrong things, they'll choke. One consultant says he had a client who failed to connect the cable adapter correctly on the LAN workstation. The file server wouldn't recognize the user.

A 3Com technical support manager

says she often talks to frustrated users who add unusual hardware to 3Com LANs, which were never designed to handle such equipment. "We're finding now that it is very common for LAN users to want to use their single-user software packages as LAN applications," says Natalie Churchill, head of 3Com technical support. "These packages were never intended for network use."

Don't get me wrong. This isn't a treatise to punish delinquent users who have failed to read the fine print.

Mike Kanthal, who is the former president of the Association for Data Communications Users, reminded me sternly, "The vendors have to make sure what they say on their brochures is accurate. They say a network can handle a lot of nodes to get the sale, but they don't tell you what the network can realistically support."

There's got to be a happy medium somewhere. Vendors have to say what they mean and mean what they say. During sales presentations, users have to ask the right questions: "You said in the brochure it supports 200 nodes. Does that mean 200 active users, or 200 workstations with 50 active users or what?" or "The brochure said the network speed is 10M bit/sec. How does that vary under a heavy load?"

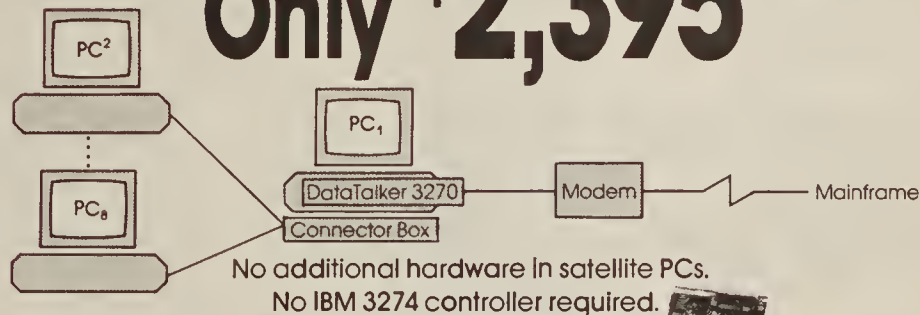
The key phrase here is never assume, or you make an . . . well, you know the saying.

Leong is *Computerworld's* West Coast bureau chief.

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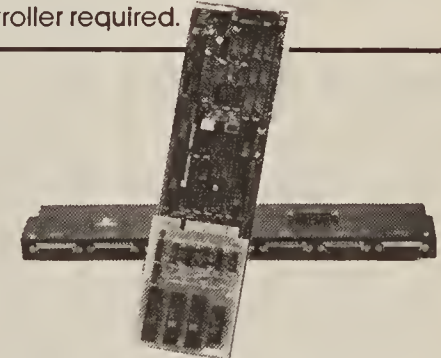
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NEW PRODUCTS

Links

Rabbit Software Corp. has released a version of its **Rabbitplus 3270-SNA** and **Rabbitplus 3270-BSC** products for personal computer systems operating under the Santa Cruz Operation, Inc.'s SCO Xenix 386.

Rabbitplus 3270-SNA lets an Intel Corp. 80386-based PC communicate with an IBM mainframe using generalized IBM 3270 data streams and IBM Systems Network Architecture protocols.

Rabbitplus 3270-BSC lets a 386-based PC communicate using binary synchronous protocols. It can operate as a stand-alone workstation or in a multiuser environment with attached asynchronous terminals.

Rabbitplus 3270-SNA costs \$1,395. Rabbitplus 3270-BSC costs \$1,995, including a multi-protocol adapter board.

Rabbit Software, Great Valley Corporate Center, Seven Great Valley Pkwy. E., Malvern, Pa. 19355. 215-647-0440.

Software said to interface Digital Equipment Corp. VAX and Microvax systems with IBM and compatible computers running IBM's DOS/VSE/Power in addition to JES2 and JES3 has been announced by **Datanex, Inc.**

EZSNA/RJE software offers IBM 3777-4 Systems Network Architecture/Remote Job Entry workstation functionality to VAX and Microvax systems. It is a complete RJE subsystem for the VAX computer.

The product uses standard DEC interface hardware and can operate on a single VAX system or, with its RJEnet option, can provide RJE and file-transfer services to several VAX systems in a Decnet network or on a Vax-cluster.

Prices range from \$3,750 for the Microvax II to \$7,500 for the Microvax 3000.

Datanex, P.O. Box 1728, Eugene, Ore. 97440. 503-687-2520.

An IBM 5080 emulation product has been announced by **Hewlett-Packard Co.**

Called **HP 98855A**, it allows users of HP 9000 engineering workstations to access IBM mainframe-based applications, such as Cadam, Inc.'s Cadam.

In a multiuser configuration,

up to 16 simultaneous 5080 emulations on the HP workstations can communicate with the IBM mainframe, according to the vendor.

The 5080 emulators can be added to existing IBM mainframes using Spectragraphics Corp.'s channel controllers and IBM-compatible 5080 terminals.

The HP-Spectragraphics de-

sign-set channel controller can support up to 64 simultaneous users and up to eight local-area network gateways.

The HP 98855A is available with 16-, 12-, eight- and four-simultaneous user licenses.

Prices range from \$9,629 to \$32,858.

HP, 1820 Embarcadero Road, Palo Alto, Calif. 94303. 800-367-4772.

Protocol converters

A Multibus network protocol processor called the **NP322** and aimed at the AT&T Unix System V, Release 3 environment has been announced by **Micom-Interlan**, a division of Micom Systems, Inc.

The NP322 combination

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UK & Europe: SPS Ltd, (44) 4862 30771
Australia: Sequel Pty Ltd, (03) 489-3222

hardware and software package is said to provide a set of tools for Transmission Control Protocol/Internet Protocol (TCP/IP) processing. It integrates a Unix System V, Release 3 and a University of California at Berkeley 4.2 socket interface library.

The hardware includes an Intel Corp. 80136 microprocessor, an Intel 82586 local-area network coprocessor and 512K

bytes of random-access memory on a single-slot Multibus I interface card.

The product incorporates all of the TCP/IP functions. It supports Streams and AT&T's Remote File Sharing features for Unix System V, Release 3. Also included is a C-callable socket interface library.

The processor costs \$2,190. Micom-Interlan, 155 Swan-

son Road, Boxboro, Mass. 01719. 617-263-9929.

File servers

The **286 Network Manager**, a four-user network system, has been announced by **Advanced Digital Corp.**

Based on the Intel Corp. 16-bit 80286 microprocessor, the 286 Network Manager supports

1.5M bytes of random-access memory on the motherboard, a 40M-byte hard disk drive, a 1.2M-byte 5¼-in. floppy drive and two hard disk drives. It supports four IBM Personal Computer AT-compatible systems running under Novell, Inc.'s Netware.

Other features include a 101-key IBM PC AT-compatible enhanced keyboard, a keylock

switch, a real-time clock/calendar and parallel and serial ports.

Two- and four-user versions are available. The basic multiuser system costs \$4,450.

The vendor also announced **Transformer 2**, an expansion board that provides multiuser support for all IBM Personal System/2 models. It costs \$1,695.

Advanced Digital, 5432 Production Drive, Huntington Beach, Calif. 92649. 714-891-4004.

Modems/Multiplexers

Newbridge Networks, Inc. has enhanced its **3600 Mainstreet Bandwidth Manager**, a T1 multiplexer.

The manager supports up to 16 links. Additional features include a digital emulation of analog multidrop lines, subrate multiplexing and channel switching.

A typical node of the 3600 Mainstreet Bandwidth Manager is priced starting at \$16,000. Single T1 multiplexers start at \$5,000.

Newbridge Networks, Suite 160, 13873 Park Center Road, Herndon, Va. 22071. 703-834-3600.

A two-channel synchronous data multiplexer designed to allow users to connect non-T1 networks and devices operating at data rates from 56K to 1.544M bit/sec. to a T1 network has been announced by **Verilink Corp.**

Called the **Connec-T1 Data Service Unit**, the device includes an integral Verilink channel service unit. It operates in either D4-type or extended superframe T1 networks. Up to 16 preselected data rates can be on each of the two channels.

The device costs \$3,495.

Verilink, 145 Baytech Drive, San Jose, Calif. 95134. 408-945-1199.

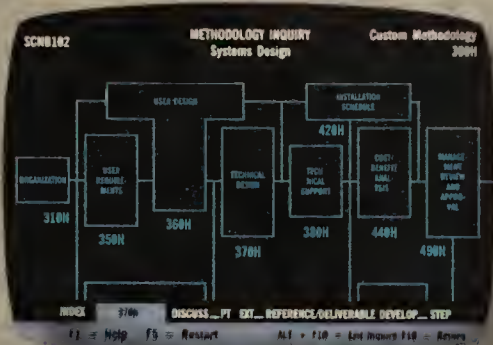
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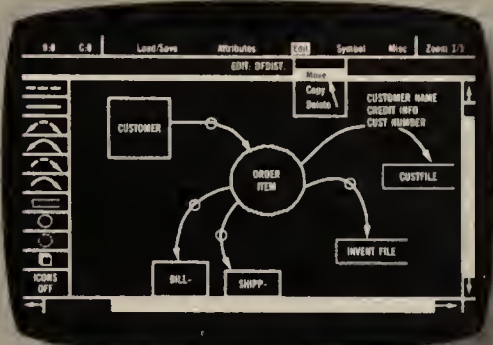
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000005	ENTRY	ENTRY NAME	ENTRY DESCRIPTION	ENTRY STATUS	ENTRY ACTION
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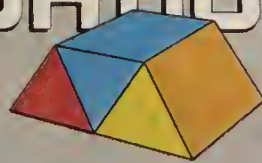
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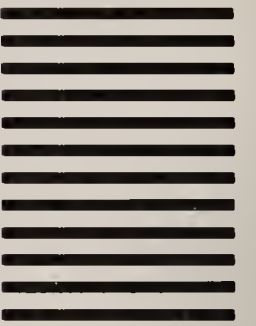
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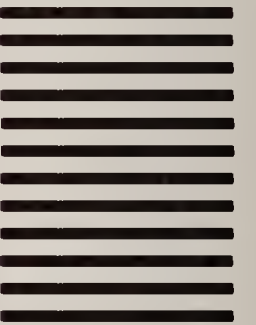
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SYSTEMS & PERIPHERALS

HARD TALK

Stanley Gibson

Olsen poses slick question



Is Unix really snake oil? That is the question gripping the computing community these days.

At the recent announcement of the VAX 8800 series and its much-vaunted symmetrical multiprocessing, DEC President and Chief Executive Officer Ken Olsen made remarks that seemingly affixed the label of "snake oil" to Unix.

You could feel the collective cringe of the DEC public relations corps. They must have thought: "There he goes again. Popping off with a controversial quote that'll haunt us for months as we try to explain, 'What he really meant to say was...'"

Well I, for one, say more power to Olsen. Why shouldn't the boss of the world's second largest computer company feel free to speak his mind? Why should his First Amendment rights be violated just because of his job?

If the opinion of anyone in the industry should be taken seriously, shouldn't Olsen's? His professional career has spanned the computer age, from the 1950s to the present. He is a techie, an MIT graduate. He has appeared on the cover of magazines.

And as a matter of fact, what he really meant to say was not that Unix itself is snake oil. What he said was that the ven-

Continued on page 45

Multiprocessing all the rage

Mid-range vendors, lured by fast transaction abilities, pile on bandwagon

BY STANLEY GIBSON
and JEAN S. BOZMAN
CW STAFF

Symmetrical multiprocessing, although most celebrated in the recent announcement of Digital Equipment Corp.'s much-anticipated 8800 series of processors code-named "Polar Star," is currently offered by a number of major mid-range systems companies.

While mainframe vendors such as IBM and Unisys Corp. have boasted the architecture for more than a decade, companies like Prime Computer, Inc., Sequent Computer Systems, Inc., Pyramid Technology Corp., Wang Laboratories, Inc. and Data General Corp. have introduced symmetrical multiprocessing within the past few years. Several that have recently introduced the capability say they plan to expand their product families by increasing the

number of processors that can compute symmetrically.

DEC's March 8 announcement was a family of four systems with one to four VAX 8700 CPUs. Enhancements to the company's VMS operating system allow symmetrical multiprocessing, improving throughput from what would be available with asymmetrical multiprocessing, such as that offered on DEC's dual-processor 8800. The four-processor 8840 offers 3.7 times the throughput of a single 8700, DEC said.

The power of one

According to Frederic Withington, an independent consultant in New York, a system performs symmetrical multiprocessing if each processor uses only one copy of the operating system, which is located in shared memory. In addition, he said, the system must look like one computer to the user.

In a cluster, however, each processor has its own copy of the operating system and each processor has its own memory, which is not shared among other processors, Withington said. In addition, a user must log on to one processor at a time, rather than logging on to the multiprocessor as a single unit. However, a DEC Vaxcluster is symmetrical, Withington said, because no single processor is given dominant status, as is the case in asymmetrical multiprocessing. In asymmetrical multiprocessing, one CPU handles job scheduling and I/O for the entire system.

Harriet Cohen, VMS product manager at DEC, suggested that the difference between the symmetrical multiprocessing of the 8800 series and that of Vaxclusters is simply that a cluster is loosely coupled, whereas the 8800 series is tightly coupled.

Continued on page 46

DEC adds VAX-based AI family

BY STANLEY GIBSON
CW STAFF

MARLBORO, Mass. — Beefing up price/performance in its artificial intelligence offerings, Digital Equipment Corp. recently introduced systems based on the Microvax 3000 and Vaxstation 2000.

The single-user systems replace previous Microvax II-based AI workstations, which will be phased out, according to Steve McIntosh, DEC's product manager for AI packaged systems.

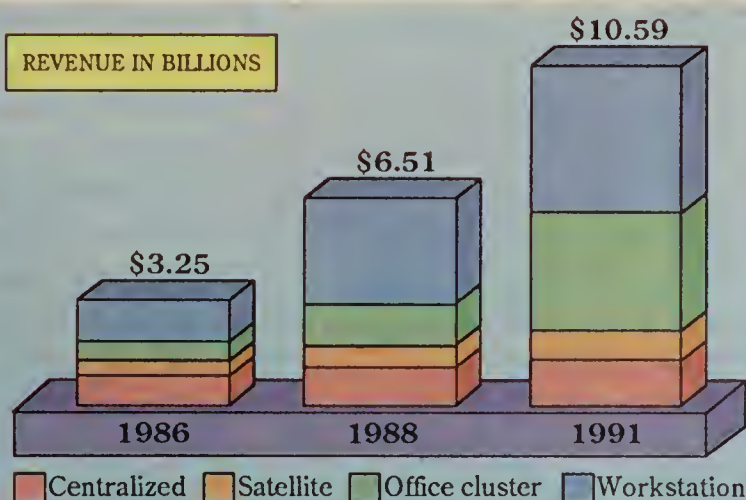
DEC introduced three AI Vaxstations based on the 3200 and 3500 workstations and a low-cost Vaxstation 2000 desktop system. DEC said it hopes to sell the systems to finance and

Continued on page 45

Data View

Low-end growth

Workstations and office clusters will fuel growth in use of intelligent printers and copiers



INFORMATION PROVIDED BY CAP INTERNATIONAL, INC.

Securities system debuts

BY ALAN ALPER
CW STAFF

NEW YORK — A recently formed unit of a Swedish conglomerate is taking on the hotly contested securities trading systems market with a turnkey approach that combines the networking and software portability of Digital Equipment Corp.'s VAX computers with its own proprietary software.

The company, Transvik, Inc., is affiliated with Invik & Co. AB, the \$100 million merchant banking arm of Industriforvaltnings AB Kinvevik in Stockholm. Transvik is targeting its efforts primarily at second- and third-

tier markets as well as at marketplaces in emerging geographical areas, according to Transvik President David Rosensaft.

The system is aimed at exchanges or marketplaces that trade securities such as options, futures and bonds.

Transvik, as the system is

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Inside

- Sigma broadens line with expansion chassis. Page 52.
- Emerson taps VAX market with plug-compatible uninterruptible power systems. Page 52.



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Gibson

CONTINUED FROM PAGE 43

dors of computer systems claiming that because they support a version of Unix, they have at their immediate disposal a vast library of Unix-based software, are like the proverbial snake oil salesmen, claiming to offer a cure for all ailments.

Olsen wanted to say that users should not be so gullible as to believe such a claim. With virtually as many variations of Unix as there are systems, it is, in fact, quite improbable that very many "Unix" applications will run on any given "Unix" system without significant alteration.

Indeed, the press releases that cross this editor's desk touting Unix-based systems show a vast array of different Unix flavors and remarkable creativity on the part of marketing types in thinking up names for them. AIX, AUX, Xenix, Dynix, Stellix and, of course, Ultrix are but a

sampling of Unix variants.

Olsen went on to question the claim of some vendors that Unix is an industry standard. He drew the distinction between an operating system that is the property of a company and the kind of standard that is hammered out by such groups as the American National Standards Institute and the International Standards Organization. Unix, he pointed out, is the property of AT&T, even though it is freely licensed.

DEC could get warmer

Olsen suggested that if Unix were handled by impartial standards groups, DEC's feelings toward it might be warmer than they are. Indeed, the implication was that when the Posix standard is de-

termined, DEC's position on Unix will thaw.

It should be noted that currently, and probably until the Posix standard is drawn up, there is no widely used operating system that is the fruit of an impartial standards group. All operating systems in popular use are actually someone's property. They are either freely licensed or licensed for use with a specific hardware system.

Microsoft's MS-DOS attained the status of an industry standard because IBM sold a lot of systems that required it. OS/2 will probably also gain such a position as a result of Big Blue's marketing muscle. Unix could gain similar currency, but if it does, it will likely reduce hardware vendors to commodity suppliers —

not a market to which DEC feels naturally attracted.

Was Olsen speaking up to toot DEC's horn? Of course. To cast possible doubt on competitors? Yes. But I have never been to a product rollout of any kind where that was not done.

How much better it is to hear Olsen colorfully voice an opinion — for which a good argument can be made — than to listen to the typically sanitized vendor drivel to which we have become accustomed.

Olsen may have dressed up his salesmen in blue suits, but he himself hasn't changed. Bless him.

Gibson is *Computerworld's* senior editor, systems & peripherals.

DEC AI

CONTINUED FROM PAGE 43

insurance companies, petrochemical, manufacturing and aerospace firms, the federal government and educational institutions.

Harvey Newquist, an AI consultant at DM Data, Inc. in Scottsdale, Ariz., saw the AI workstation announcement as a response to recent announcements by Sun Microsystems, Inc. and Texas Instruments, Inc.

"There is no new product here. They [DEC] just put together a package following the Micro Explorer announcement," he said, referring to the recently announced version of Apple Computer, Inc.'s Macintosh that includes TI's LISP-based Explorer microprocessor.

Newquist also pointed out that Sun recently announced a version of LISP to run on its workstations. Both developments drive the cost of entry-level AI workstations down.

Expert systems for any VAX

The new systems can be used to develop expert systems for delivery on any other VAX computer, according to DEC. All three include licenses for VAX LISP and either the DEC Ultrix or VMS operating system. In addition, a license for VAX OPS5, a rule-based expert system development tool, is included with VMS systems.

The AI Vaxstation 2000 comes packaged for use as part of a local-area Vaxcluster. An optional tape cartridge drive is required for the system to be used as a stand-alone device. The AI Vaxstation 2000 includes 6M bytes of memory, a 19-in. monochrome monitor and a 71M-byte disk drive. The system is priced at \$13,570.

The AI Vaxstation 3200 has 16M bytes of memory, a 19-in. black-and-white monitor, a 159M-byte disk drive and a 95M-byte tape drive. The system is priced at \$35,965.

The AI Vaxstation 3500 comes with 16M bytes of memory, a 19-in. color monitor, a 280M-byte disk drive and a 296M-byte tape drive. Maximum memory is 32M bytes. The Vaxstation 3500 is priced at \$59,505.

The workstations are available immediately with a 30- to 90-day delivery period.

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Securities system

CONTINUED FROM PAGE 43

called, can be customized to the requirements of any securities marketplace, Rosensaft said. Its capabilities can be distributed among single or networked VAXs at one or many central facilities or on a local level via Microvaxes and Vaxstations, the firm said. DEC workstations on the network perform local processing, store personal files, access market feeds and news services and can be linked to back-office systems using industry standard interfaces, Rosensaft said.

Unlike some existing systems, Transvik can automatically execute any size trade at the push of a button, according to

Rosensaft. "The trading process for the most part is still a manual process," he said. "Most of the systems out there automate pre- and post-trade activity. We do that and automate the transaction."

The DEC workstations have been adapted so that they are operated without the need of a keyboard. Users invoke commands appearing on a series of overlapping windows using a three-button mouse. The workstation can be configured to automatically trigger buy or sell orders based on predetermined parameters and can be set to alert users to specified trading opportunities.

The company declined to provide pricing, noting that each individual marketplace and exchange has different requirements.

Multiprocessing

CONTINUED FROM PAGE 43

"DEC has discovered tightly coupled multiprocessing. There are only so many computer architectures. They have rediscovered where IBM was 10 years ago," Withington said.

However, as Withington and several other observers pointed out, DEC has also discovered what it once had itself in the Decsystem-10, which consisted of up to four symmetrical multiprocessors. That system was discontinued in DEC's move to the VAX architecture.

Symmetrical multiprocessing offers perhaps its greatest benefit in boosting performance in transaction-intensive

commercial applications. "Tightly coupled multiprocessing is a very valuable thing for transaction processing," Withington said, because any processor can initiate I/O. In asymmetrical multiprocessing, because only one processor can handle that function, a bottleneck of I/O tasks can occur.

In a cluster, meanwhile, memory is not shared between the processors, and a user can only log on to one processor at a time, two factors that also limit throughput in high-transaction environments.

Most symmetrical multiprocessors offer dynamic load balancing, which means that high-priority jobs coming into the system can be processed immediately by the most appropriate processor rather than having to wait until a processor is free.

Similarities between systems

DEC's 8800 series resembles Pyramid's Series 9000, which also consists of one to four processors. William Gimple, Pyramid's vice-president of system engineering, said the systems form a closely coupled symmetrical configuration. As in the VAX 8800 series, the processors share a common systems bus.

In the Pyramid series, two processors yield 1.85 times the performance of one processor; three processors, 2.7 times the power; and four processors, 3.6 times the performance. These are virtually identical to the ratios claimed by DEC for each of its four 8800 models.

The Pyramid system is Unix-based; the DEC 8000 series is VMS-based. "We had to overhaul the internals of Unix" to arrive at symmetrical multiprocessing, Gimple said. DEC, however, said it will soon support symmetrical multiprocessing under its Ultrix version of Unix.

Unlike DEC, Pyramid does not offer a clustering capability. But Gimple says Pyramid expects to offer symmetrical multiprocessing support for more than four processors "in the not-too-distant future."

In late December, Wang quietly announced its top-of-the-line VS 7320, the company's only multiprocessor. As shipped to early sites, the VS 7320 is a tightly coupled symmetrical system based on two VS 7310 CPUs. By offering a symmetrical multiprocessor, Wang was able to sell a machine 1.9 times as powerful as a VS 7310 uniprocessor at only 50% more cost.

To upgrade a VS 7310 uniprocessor to a VS 7320 requires the addition of a second processor board to the VS 7310's cabinet, Wang said.

"The VS 7320 establishes a technology platform on which Wang will build even larger, more powerful systems," said Bob Ano, Wang's corporate marketing senior vice-president, when the 7320 was introduced, indicating that symmetrical multiprocessing will probably be extended to include additional CPUs.

DG also offers a multiprocessing system, which offers "near-symmetrical multiprocessing," according to Stan Dolberg, manager of DG's Integrated Systems Group. The MV 20,000 Model 2, introduced in November 1985, contains two CPUs running on one copy of the operating system.

Just as Wang is planning to extend its symmetrical multiprocessing design, so is DG, Dolberg said. "Our customers are pushing all of the computer vendors, us included, toward providing a well-balanced, global computing resource. Our operating

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system is capable of supporting more than two processors, and we have other multiprocessing machines on the drawing boards."

Sequent's Symmetry system, currently available with up to 10 Intel Corp. 80386-based CPUs, performs symmetrical multiprocessing as well. The system uses an adaptation of Unix, called Dynix, that has been altered to perform symmetrical multiprocessing.

Each processor uses a single copy of the operating system in shared memory. When a so-called "copy-back cache" feature becomes available next month, the system will perform symmetrical multiprocessing with up to 30 CPUs, according to Sequent.

Sequent developers created what they call the Unix scheduling algorithm, in which high-priority jobs are tagged with a priority number so that they will be able to interrupt jobs of lower priority, said Ron Parsons, manager of technical marketing. "The Unix algorithms had to be changed to multiprocessing algorithms," he added.

Users of Sequent's Symmetry and its earlier Balance systems, which are based on National Semiconductor Corp.'s 32032, can elect to perform parallel processing on the same machines, Sequent officials said.

Balancing the work

Prime's 6550 system consists of two symmetrical multiprocessors. Both processors use a single copy of Prime's Primos operating system residing in shared memory. "The real key to being able to exploit more than one processor is the ability to balance the work load," said Walter Jones, director of CPU development at Prime.

"If a task is waiting on one processor, then you want to move it to the other CPU," he said. In the Prime 6550, the dispatcher function is in microcode on each CPU. The two CPUs are connected directly through a channel. The direct connection helps the two processors communicate to share the work load, Jones said.

Jones added that using only two processors is an advantage over using three or four, which can create greater complexity, leading to greater operating overhead and decreased throughput. The 6550 is rated at 23.6 million instructions per second, according to Prime.

Spinlock is key

In DEC's 8800 series, the key innovation that allows the sharing of resources and prevents contention is something called the spinlock. "To initiate I/O, a processor must own the spinlock. It must test to see if the spinlock is available," Cohen said. A spinlock is a bit in memory, a binary condition and a part of the VMS

operating system, he added. The spinlock is known as a kind of semaphore, or signaling, function.

In the Sequent Symmetry system, some 100 spinlocks are used, according to Parsons.

In DEC's systems, the spinlock was added to the VMS scheduler, which exists in all VMS systems, whether uniprocessor or multiprocessor.

In a cluster, the VMS lock manager handles synchronization. It is similar to the spinlock used in the 8000 series, Cohen said. However, there is no dynamic load leveling in the cluster. A job with highest priority will always be processed before lower priority jobs on a symmetrical multiprocessing system; on a Vaxcluster, it will not automatically go first.

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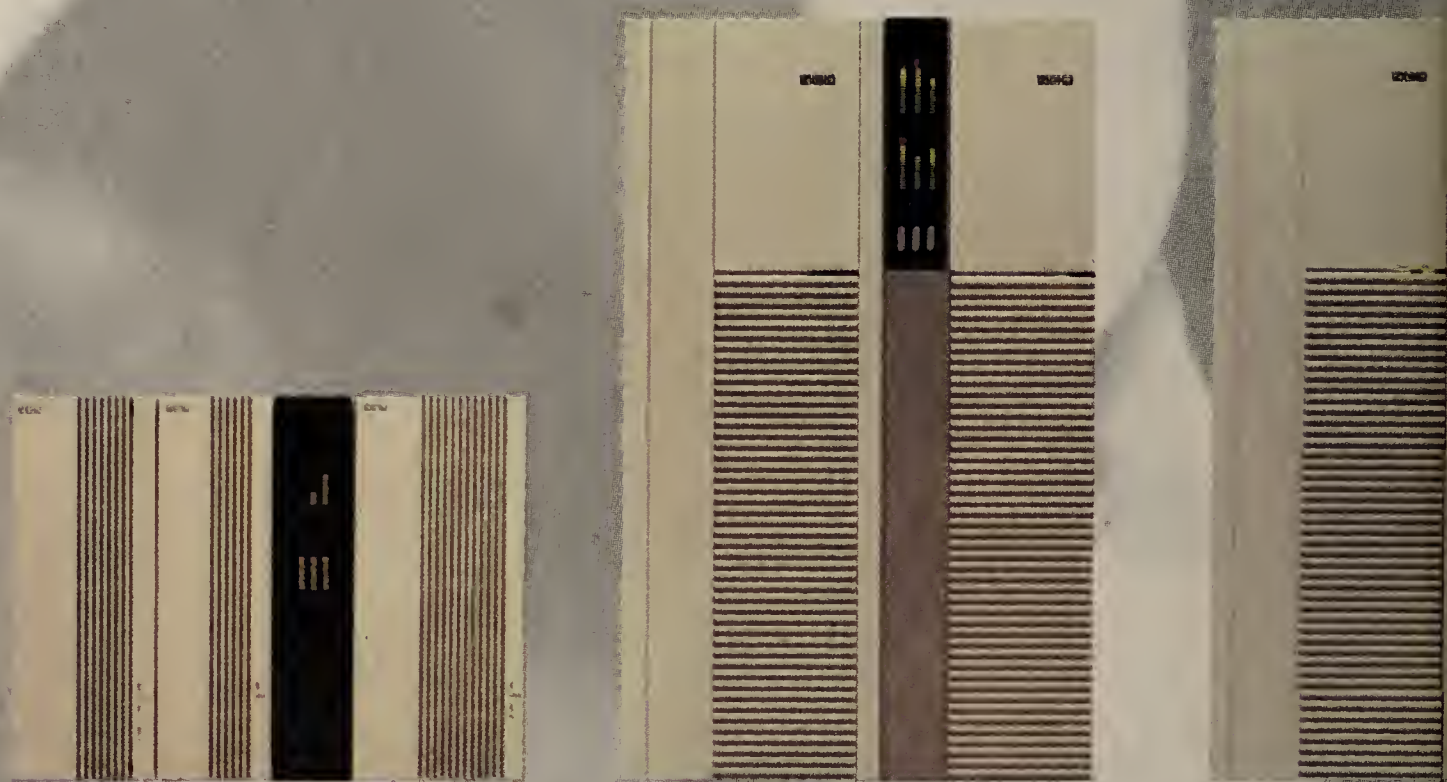
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NEW PRODUCTS

Data storage

An expansion chassis for pluggable 5¼-in. Winchester disk drives has been announced by **Sigma Information Systems**.

Called the **SA-H163**, the chassis holds two drives that can be transported. Each drive mounts on a drive bracket. The drive brackets include drive power and data connectors that mate with low-insertion-force docking connectors inside the chassis.

The product can be configured to operate both drives from a single controller or

each drive from a separate controller. The chassis can be daisy-chained for operation of four drives from a single controller.

The SA-H163 costs \$1,431.

Sigma, 3401 E. LaPalma Ave., Anaheim, Calif. 92806. 714-630-5417.

Toshiba America, Inc. has increased the storage capacity of its **WM-S500** 12-in. write-once read-many optical disk drive to 5G bytes.

The drive stores up to 2.5G bytes per side, the vendor said. The data transfer rate ranges from 4M to 8M bit/sec., and the average seek-access time is 160

msec. The WM-S500 features a small computer systems interface and a built-in power supply.

The drive costs \$13,995. The 5G-byte cartridge costs \$395.

Toshiba, 9740 Irvine Blvd., Irvine, Calif. 92718. 714-583-3108.

A nonerasable optical disk drive for jukebox applications has been announced by **Optimem**, a subsidiary of Cipher Data Products, Inc.

The **Optimem 2400** offers a data storage capacity of 2.4G bytes on a 12-in. disk. It uses 48,000 tracks per disk. According to the vendor, it is compatible with existing Optimem 1000 optical media. Other features include single-insertion operation.

The Optimem 2400-1 model costs \$14,990. The Optimem 2400-6 model, a save-drive-without-controller product, costs \$13,370.

Optimem, P.O. Box 85170, San Diego, Calif. 92138. 619-578-9100.

Printers/Plotters

A series of eight-pen plotters consisting of D- and E-size models has been announced by **Schlumberger Technologies' Graphics Division**.

The dual-mode plotters, called the **18 series**, feature an automatic pen-changing system for unattended operation, vector optimization software and built-in storage facilities for supplies and accessories.

Both models accept any type of media in sizes A through E.

Prices range from \$6,890 to \$8,890.

Schlumberger, P.O. Box 7169, 385 Ravendale Drive, Mountain View, Calif. 94039. 415-964-7900.

Giltronix, Inc. has added a low-end buffered printer-sharing device to its line of peripheral-sharing products.

The **EZqueue 1000** offers printer and plotter sharing for work groups of two to six users. It features six programmable RS-232 serial I/O ports and two IBM-type parallel output ports. Also included is a 256K-byte print spooler and a random-access memory-resident pop-up menu software program for printer selection.

The EZqueue 1000 is nonexpandable but can be daisy-chained. It costs \$95.

Giltronix also announced the **ESP Surge Protector** for use in safeguarding equipment from electrical spikes conducted through RS-232 cable. The price is \$49.95.

Giltronix, 3780 Fabian Way, Palo Alto, Calif. 94303. 415-493-1300.

A color upgrade kit said to provide seven-color printing capability for Toshiba's **P351SX** 24-pin dot matrix printer has been announced by **Toshiba America, Inc.**

According to the vendor, the color ribbon that is now available for the kit has a life expectancy of 750,000 characters per band.

The color upgrade kit is priced at \$239.

Replacement ribbons cost \$20.

Toshiba, 9740 Irvine Blvd., Irvine, Calif. 92718. 714-583-3000.

Power supplies

A series of on-line, plug-compatible uninterruptible power supply (UPS) systems for Digital Equipment Corp.'s VAX-11/725, 730, 750, 8200 and 8300 computers has been announced by **Emerson Electric Co.**

Called the **AP101/VAX** series, the products provide a streamlined connection between the electric power source, the UPS system and the computer, according to the vendor.

The products are available in 3, 5 and 10kVA models with I/O frequencies of 50 or 60Hz.

A 10-minute internal battery system is standard.

Prices range from \$8,500 for a 3kVA system to \$16,500 for a 10kVA model.

Emerson Electric, 3300 S. Standard St., Santa Ana, Calif. 92702. 714-545-5581.

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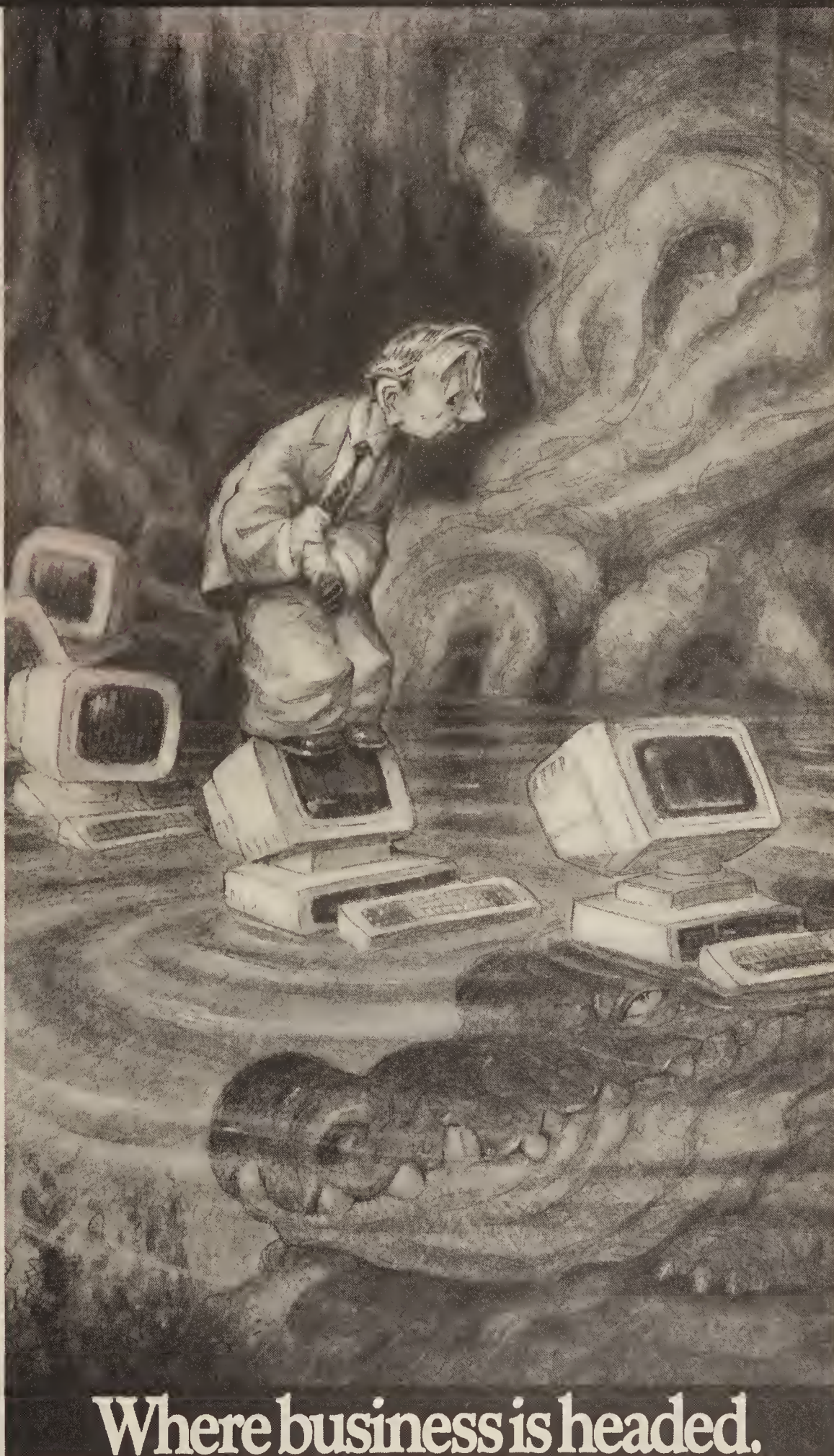
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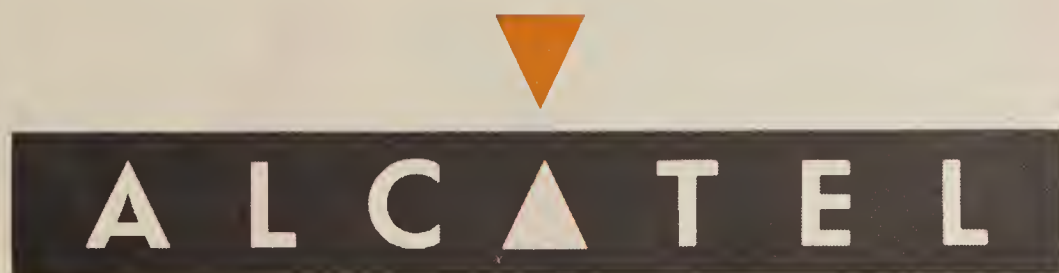
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EXECUTIVE REPORT

MIS HUMAN RESOURCES

MIS hiring and training: In search of business savvy

BY MICHAEL BALL

As information systems take on strategic roles in business, MIS managers face a pressing need to recruit or train employees whose technical knowledge is balanced with business savvy. "There is no greater need than understanding the business problems and strategies," says Stephen Tucker, head of a corporate program at General Electric Co. aimed at developing information systems leaders.

"As the technical skills become common, we are simply going after the best people," adds Dave Novak, Firestone Tire & Rubber Co.'s section manager of corporate systems in Chicago. "I'll go with the better, well-rounded, business-oriented person every time."

Developing human resources is one of the obstacles that stands between MIS managers and the strategic advantages they envision. But this is just the sort of challenge in which optimists find opportunity, as can be seen from some of the organizations that have already taken up the gauntlet.

Leaders of The Travelers Corp. in Hartford, Conn., are among those who recognized the need for well-rounded MIS managers and dealt with it properly, according to David Miron, a principal and organizational analyst at consulting firm Temple, Barker & Sloane, Inc. in Lexington, Mass.

"They took the best business guy they had out of his job and had him spend a full year focusing on MIS issues," Miron says. "That is a very expensive way to

do it, but they ended up with someone who truly understood both."

Both sides now

In another case, First Interstate Bancorp in Los Angeles is turning to a management training program to develop business-oriented MIS employees as it seeks to maintain or expand its systems work force of 2,000.

"We have a management training program, and we seek

both the MIS and business sides of a job.

"When we have a major contact with a client, they know how to deal with it," Muhawi says. "Traditional DP suffers in this kind of relationship." His program offers new opportunities for those who can straddle the disciplines, he says.

Other examples of companies currently using human resources to develop corporate-minded MIS executives include

hold nontechnical degrees, sometimes finding them in unexpected places.

- In decentralizing, Firestone is seeking workers for both its central systems staff and dispersed units who fit the description of being business-oriented, well-rounded and good at working with others.

Molding leaders

At GE, business units are responsible for recruiting their own people, but they can petition help from a corporate program aimed at developing information systems leaders.

"We are definitely trying to get the leaders of the future, the technology leaders, the best data base people, the best managers of information systems in the world," Tucker says.

Students in the program hear repeatedly that the purpose of their training and the GE work experience that follows is to turn them into strategic thinkers — the MIS leaders the company is looking for.

"Students today all have technological skills," Tucker says.

"We look for leadership and try to develop it."

The program starts with recruitment. "We work with colleges and want the same group that everybody else does — the top-quartile grade point averages," Tucker says. While it does not expect to end up with a roster of perfect candidates, GE works with a profile of those it expects will flourish in the program.

The first thing the company looks for is experience and drive. One indication of these qualities is cooperative education or summer work — with GE or another organization — ideally in a computer-related field.

"Those who have done good summer or cooperative work can



LES KATUREK

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degreed employees with a willingness and aptitude to specialize in DP," says Sam Muhawi, an employment manager at the company.

First Interstate's idea is to produce IBM-style account managers who are able to understand

the following:

- GE is trying to develop leadership in systems recruits through its training program and by rotating job assignments.
- Arthur Andersen & Co. is actively recruiting qualified, entry-level systems professionals who

Ball is a free-lance writer based in Boston.

Hiring

FROM PRECEDING PAGE

override a lower grade average," Tucker says.

Perhaps more important, however, recruiters review application materials and listen during interviews for evidence of an interest in using computer systems to solve business problems. "We pay commensurate with their impact on the business," Tucker claims.

But Tucker contends that the program is neither sold nor bought on the basis of financial reward. "Our starting salary is competitive, but it is the program that attracts people more than an extra \$1,000 a year," he says. The job comes with a promise of "the right tools and experience to do the crucial things, like rotating their assignments to round them out and find talents."

No guarantee

Unfortunately, many candidates do not enter the program as strategic thinkers, even if they are accomplished in their schoolwork, and quite a few will finish it

without becoming ideal leadership material. The nature of changing the way even bright people think and act is neither sure nor swift.

"Within two years, we can't stamp, 'This person is a strategic thinker' on their foreheads," Tucker says. "But we and they can begin to see where they're headed."

Tucker says he does not consider the program to have fallen short if every student is not a paragon of leadership.

"Even if they are not those leaders we are looking for, they and we benefit if they come out only thinking 20% better," he says.

Ready supply

Arthur Andersen, a company that typically undertakes heavy recruiting of college graduates, is finding a ready supply of candi-

dates who are more well-rounded for systems jobs, according to Skip Battle, managing director of Andersen's Northern California offices.

The Big Eight accounting and management consulting firm finds that many college and graduate school students with nontechnical degrees are making themselves more marketable by taking MIS-related courses.

Majors in subjects such as economics and English bring new and different sets of knowledge with them, abilities that augment the traditional computer science backgrounds of the typical Andersen data processing staff member.

"We hire the vast majority of our people off college campuses," Battle says. "In the last several years, an awful lot of gradu-

ates, regardless of their majors, came out with fairly substantial [DP] backgrounds."

Not from these parts

Students from schools not traditionally associated with MIS prospects have successfully approached the firm's recruiters. "We find that many more are arranging their electives to provide a broader range of knowledge when they graduate," Battle says.

In other cases, colleges have let the company know that their curriculum has been revised, making their graduates attractive to the company.

Some graduates who never thought of working for a Big Eight firm have reacted well to being courted for the field, Battle says. "We find that some disciplines that have been less aggressively courted have a heartwarming response."

Although Andersen says it likes the new source of recruits, the bulk of its MIS people will

continue to come from computer science backgrounds.

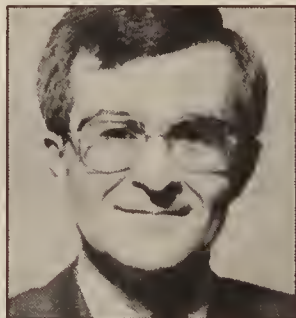
"We will never replace computer science graduates, but we will augment them," Battle says.

Specifically, Andersen says it expects at least three-fourths of its entry-level hires to have technical or business degrees and the others "a clear quantitative aptitude," according to Battle.

But the trend toward generalist recruits suits Andersen's growing demand for more diverse skills in MIS and its need to hire 20% to 25% more MIS and DP people this year.

In addition, it fits in well with the company's traditional strategy of "hiring very bright, very energetic graduates and making sure they have ongoing education," Battle says. "We spend over \$100 million a year on this, and after 20 years, I'm still getting updated."

The need for MIS staffers who possess multifold abilities is crucial in a decentralized or



WE LOOK for leadership and try to develop it."

STEPHEN TUCKER
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Andersen's Battle

To maintain top employees, practice what want ads preach

BY SHERYL KAY

The MIS world has come to a general consensus about what it takes to attract and keep good employees. Thumb through the help wanted pages: Advertisements for technical professionals almost always offer the best compensation, management, working environment and career growth.

But how can MIS managers be sure their companies really offer what they're advertising?

Even today some of America's most well-known corporations still have no true hiring assessment procedures in place. With the computer's impact on business, companies that take a nonchalant approach toward assessing their own hiring practices of computer professionals will find it impossible to stay on top.

Taking steps

There are several steps MIS managers can take to ensure their companies practice what they preach.

First, overburdened MIS managers might do well to rely on their company's human resources department. "Remember that human resources' primary responsibility is to educate

and assist management in how to do the job effectively in order to maximize profitability and productivity," says George E. Biles, professor of management at the Kogod College of Business Administration at American University in Washington, D.C.

Second, it is possible to quantify and assess employee views on management's performance

WE AREN'T big enough for a formal compensation system, so surveys and other candidates' salary histories are important."

KATHERINE KNOWLES
ISALY KLONDIKE CO.

regarding certain human resources issues. This is often best done through questionnaires.

Some hiring practices are relatively easy to assess. Whether a company is big or small, managers should make sure they budget to offer competitive salaries.

Katherine Knowles, director of personnel and administration at Isaly Klondike Co., a St. Petersburg, Fla., ice cream maker, notes that geography can be a big factor when considering sala-

ry ranges. "Good, high-level people are hard to find around here, especially with the skills we require," she says.

To ensure that Isaly Klondike is competitive, Knowles obtains salary surveys from several organizations, including the Pinellas Suncoast Personnel Association, of which she is vice-president.

She also periodically checks with state and federal government agencies and national recruiting firms for salary ranges for MIS professionals in other regions. Knowles shares this information with Kevin Harrigan, Isaly Klondike's DP director.

"We aren't big enough for a formal compensation system," Knowles says, "so surveys as well as other candidates' salary histories are important."

What are the benefits?

Employees also take insurance and other benefits into consideration when reviewing compensation plans, so offering a comprehensive plan is important.

At GE Capital Corp. in Stamford, Conn., where 40 MIS positions became available in 1987, Bill Wilson, manager of human resources development, says he tries to make sure his organization's benefits program is as good as or better than what is offered at other firms.

Complementing national sur-

veys conducted by the company's parent corporation, General Electric Co., GE Capital conducts an internal Practice Survey every 18 to 24 months. In that survey, "we ask our employees for written feedback in many areas, one of which is satisfaction with benefits," Wilson says.

Sense of direction

Good management is another issue that concerns MIS professionals.

"Some employees may have left another firm because there was no sense of direction, no goals set for them for today, this week or this year," Isaly Klondike's Harrigan says. "In a company of our size, if a manager is not good, it becomes obvious very quickly."

Jay Verneuil, GE Capital's vice-president of corporate information systems, says the same is true in larger organiza-

tions, so GE Capital also collects data on employee views of management in its Practice Survey.

Managers seeking to foster a good working environment should consider the physical attributes of the office, such as lighting, noise and furniture. All these factors may need to be modified to suit the work needs of technical professionals.

Roundabout research

Isaly Klondike's Knowles says she is able to gather information on environments at companies in her local area through interviews with job candidates.

"If I know they're interviewing at other places, I always ask them what the other firms may be offering in a general sense," she says.

GE Capital also monitors training as well as career growth, in part because of the importance of these considerations to systems professionals,

DP's rolling stones

The most common reasons* for turnover among information systems staff members, according to a survey of 370 organizations with a median budget of \$10 million

Offer of higher salary	3.9
Offer of more responsibility	3.7
Unhappy with position	2.6
Offer of better benefits	2.3
Internal company transfer	2.3
Reorganization or budget changes	2.2
Terminated for poor performance	2
Career change	1.9
Stress or burnout	1.8

* Based on scale of 1 to 5; 1 = least common, 5 = most common

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Kay is an MIS human resources consultant based in Tampa, Fla.

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departmentalized company, according to Firestone's Novak, whose firm is in the middle of diversifying and, simultaneously, addressing the impact of microcomputers and departmental systems.

To cope with these issues, Novak says, "you can have expertise at the top, but there is a need for better people and also different people at the central location." His company looks for employees who display broad knowledge and experience; it prefers those who possess an ability to work well in a small group.

Getting the job done

In seeking someone able to work with a small group, the company has to weigh the benefits of inspiration against the value of getting a job done quickly and well. At least at Firestone, the day of the hot-shot, shoot-from-the-hip programmer is over.

"We look at the person and see if he is compatible with our goals," Novak says. "Our new challenge is to provide enough commonality, use enough standards to get everyone to work alike, without stifling creativity."

Getting the right people requires good management and training, and Novak says the trend toward better-rounded students and MIS staffers helps with this concern. "We get less concerned with technical skills because there are so many people coming in with the skills already,"

Verneuil says.

"Several years ago, we went through a real effort to create a job ladder showing our employees the jobs and experience they would need to get to other opportunities for a multitude of career paths," he says.

"Along with this," he continues, "we developed and utilize a very formal review process to see just where people have gone and where they are going, a very candid evaluation with managers and employees."

Big on training

GE follows a policy of closely monitoring training, Verneuil says. "Each course we offer to an employee — internally or externally — is followed up by a written assessment from each participant on various aspects of the course . . . the materials, the teacher, the facility," he says.

"Over many years, we have paid careful attention to these written reviews and have continued to weed out, so that this past year we maintained an 8 to 9 out of 10 rating, overall, on all of the courses we offered," he continues.

MIS professionals may also consider whether credit and recognition are given in reward for good work; they may research the availability of new technology and the openness of communication between professionals and all levels of management, as well.

Other issues must be monitored to assess the effectiveness of the human resources department; legal compliance must be inspected. For example, DP shops must conform to Equal Employ-

Reeling in the staff

Degrees of success among methods for recruiting staff, according to a survey of 370 systems organizations with a median budget of \$10 million*

Search firms	3.5
Colleges	3.1
Internal recruiters	3.1
Employee referrals	3
Advertising	3
Transfers from user departments	2.7
Cooperative education programs	2.5
Walk-ins	1.8

* Based on scale of 1 to 5; 1 = least successful, 5 = most successful
INFORMATION PROVIDED BY TOUCHE ROSS & CO.
CW CHART

he notes.

In Firestone's case, the ideal candidates display a blend of computer and business skills.

"The emphasis here is to not think of MIS as an only career," Novak says. His trainers nurture the application of business skills, breed them in MIS and put them in the client area. "That's where they know both sides of the job," Novak says. That done, it is the company's responsibility to use the talent and skills wisely. "You make them managers, not clerks," Novak says.

Firestone's experience is not unique,

ment Opportunity laws.

Finally, managers should monitor their own performance on human resources issues, such as their response time in filling vacancies. The need for speed in this area varies, depending on the nature of the job being filled.

"At Isaly, all of our MIS staff are highly visible, so we are always looking for very special, aggressive individuals," Harrigan says. "We'd rather spend three months looking for the cream of the crop than settle quickly for what turns out to be the wrong person."

Once the right candidate is identified, however, the manager must act quickly. Especially for top talent, the half-life of an available candidate can be short, Wilson says.

Watch turnover

Turnover should be calculated and monitored at least annually. Wilson says GE Capital does this by separating uncontrollable departures — such as when a worker's spouse relocates — from those considered controllable.

Such data collection marks only the beginning of human resources management concerns, however: Analysis of the data and continuous follow-up will help ensure MIS managers that they are in tune with their employees.

"If you don't pay attention on a day-to-day basis to these issues, you may be OK," Verneuil says.

"However, if you don't keep them in front of you during the year, at one time or another, it will come back to haunt you." •

according to Ted Freiser, president of consulting firm John Diebold & Associates. "Getting the right number of people with the right skills into decentralized locations is a challenge," Freiser says. "First you have to ask how many in a centralized location meet the profile and are fit to become decentralized." He notes that a large shop can tolerate a few people who are surly, overly independent and even dictatorial.

All these changes should be made with subtlety, Freiser says. "We advise companies to involve the human resource organization very early on and to plan the transition to take place slowly, not 'Monday, you report to this person from now on.'"

Finally, in decentralizing, managers often overlook the need to make sure that those who remain centralized do not feel left behind or as though they missed an opportunity. Getting the right people who work well in a central environment is one step. The other, according to Freiser, is to make them feel they have a new, major role, that their jobs have a new vitality because they are in the main shop.

Top managers needed

The need for business-oriented MIS managers often goes right to the top of organizations, according to Temple's Miron. "Today, MIS needs an information plan just as well done as the company plan, and it must be created by business managers working with technology managers," Miron says.

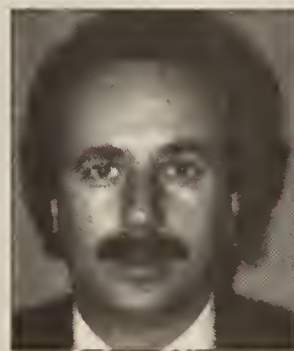
"Many companies are hooked into projects that are not on the critical path of strategy, just not serving the strategic needs of the organization," Miron says.

The traditional separation of MIS from the corporate strategy lies at the heart of this problem.

If the chief executive officer or general manager does not specify the company's needs clearly, or if the MIS manager does not understand these needs, the MIS staff may end up spending months working on a misguided project.

In the end, it is only when the CEO demands, "I want this!" that the situation is finally resolved.

"It is not until that happens that the specification becomes clear," Miron says, "and perhaps seven months have gone by at that point." He concludes that the "good general manager is probably the scarcest commodity of the [MIS] business." •



"I'll go with the well-rounded, business-oriented person every time."

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'People' people

In contrast, a smaller, remote shop would attach high value to reaching a consensus and encouraging interpersonal skills. As relatively self-contained units, these shops demand a greater variety of knowledge and skills.

Furthermore, decentralized sites tend to require workers who blend business and technical knowledge and have what Freiser calls a sales orientation. "The new attitude is, 'We'd better be a viable, pleasant service,'" he says.

Decentralization often calls for redeploying some members of the central staff, Freiser adds. "As you distribute, you need only so many [centralized] programmers and analysts," he says. "Those who are mistitled become obvious quickly."

Furthermore, as the central group gets smaller, it becomes less challenging to manage and requires fewer managers skilled at running a large organization. Freiser advises companies to move such people into areas other than data processing or MIS, such as another centralized corporate organization.

"That would be a consulting resource from then on," he says.

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Creating careers out of maintenance

While MIS managers face a growing need for workers with business knowledge, they must still attend to the age-old problem of maintaining an able work force to perform crucial — if relatively unprestigious — technical jobs.

"There are areas that nobody wants to do, like data conversions from one system to another," notes Bob LoPresto, senior partner and managing vice-president with executive recruiter Korn/Ferry International.

“WE DON’T want to make prima donnas from these people, but we have to have certain skills.”

WAYNE CHASTAIN
LYKES BROTHERS, INC.

In software maintenance — perhaps more than any other field — companies are confronted by a high demand and a short supply of motivated staffers. This problem becomes particularly crucial as the body of corporate software matures.

Not one but two

Some firms are concentrating on retaining valued technical experts by offering them dual career paths that offer premium pay and prestige in lieu of promotions to management positions; in fact, these workers might not excel at or even be interested in going the managerial route.

One company is working toward a vision of providing employees with a career in maintenance. "We've already made the decision to separate new development from the maintenance function," says Wayne Chastain, director of corporate systems development at Lykes Brothers, Inc., a diversified agribusiness firm in Dade City, Fla.

Previously, maintenance at Lykes Brothers suffered the fate it does in many companies: "It had to get done, but it fell by the wayside," Chastain says. That came as no surprise, he says, since "industrywide, there is something of a stigma attached to maintenance." It is often a job given to new staffers, who are not in a position to object. Unfortunately, this brings its own set of problems.

"In many companies, the new guys do it and then move on as quickly as they can," Chastain says. That can add to the amount of maintenance necessary, he says, "because a lot of maintenance is slowed by dealing with the spaghetti code the new guys have done over the years." Com-

panies also suffer when maintenance programmers are promoted to areas such as analysis before they are ready, perhaps because the company offers no other career path.

To address the situation, Lykes Brothers is working from

several fronts. The company is restructuring maintenance salaries by upgrading them and eventually creating more grades within a function.

"We don't want to make prima donnas from these people, but we have to have certain

skills," Chastain says.

But while Lykes Brothers aims to separate maintenance from new development, the company finds that, for now, it must let maintenance professionals delve into new projects to maintain their enthusiasm.

"It is a slow evolution," Chastain admits. "It is easy to say we need to separate these, but the agonizing part is how do we go

about making this attractive?"

Lykes Brothers is developing job descriptions in programming analysis to provide programmers with the opportunity to make more money and gain status without going into business analysis. Chastain says he would like to do the same for software maintenance and that he thinks that will help achieve the permanence and high-performance

Most OLTP isn't.

levels he wants.

"Maintenance is one of the more important things we do," he says. "I would eventually like to see people wanting to stay in maintenance and be managers."

However, Ted Freiser, president of consulting firm John Diebold & Associates, predicts widespread problems would accompany efforts to implement technical career tracks, even

though many companies claim to have such options.

"I don't know of many companies that really have a dual career path," he says. "They can have a form of one from entry-level to senior programmer, but there's not much most companies can do except allow [workers] to carry the fictitious career title of senior analyst."

MICHAEL BALL

Money isn't everything

As if instilling business acumen in systems workers was not enough to worry about, MIS managers also must concentrate on retaining the technical talent that — at considerable expense

— they recruited or trained.

While money is often the key to keeping employees, several authorities say that providing challenging and rewarding work is also critical.

"They can say what they want, but money and benefits are still on top of the list of requirements for candidates," says Sam Muhawi, an employment manager at First Interstate Ban-

corp. But even though his company and many others offer competitive salaries and benefits, Muhawi says that, beyond that, most candidates really do want challenges — which he says a large, busy MIS environment can offer.

All that glitters

Bob LoPresto, managing vice-president and senior partner at executive recruiter Korn/Ferry International in Palo Alto, Calif., says that in trying to retain employees, "money comes in when work isn't so glamorous and projects aren't interesting and challenging."

In many companies, managers don't mind paying their best technical people well, realizing what it would cost to replace them. However, leading-edge companies have an advantage in attracting and retaining top people with work that is perceived as challenging and exciting.

Arbitron Ratings Co. in Beltsville, Md., is concerned



Arbitron's Evans

with keeping employees who were recruited or trained in conjunction with the company's conversion from Control Data Corp. and Data General Corp. equipment to IBM machines.

Like many other companies, Arbitron cannot always find people who exhibit the level of skill it seeks in areas such as IBM CICS and DB2. "As a result, we sometimes compromise [by hiring] younger people with some experience and then training them in what they don't know," says Evan G. Evans, Arbitron's manager of information systems.

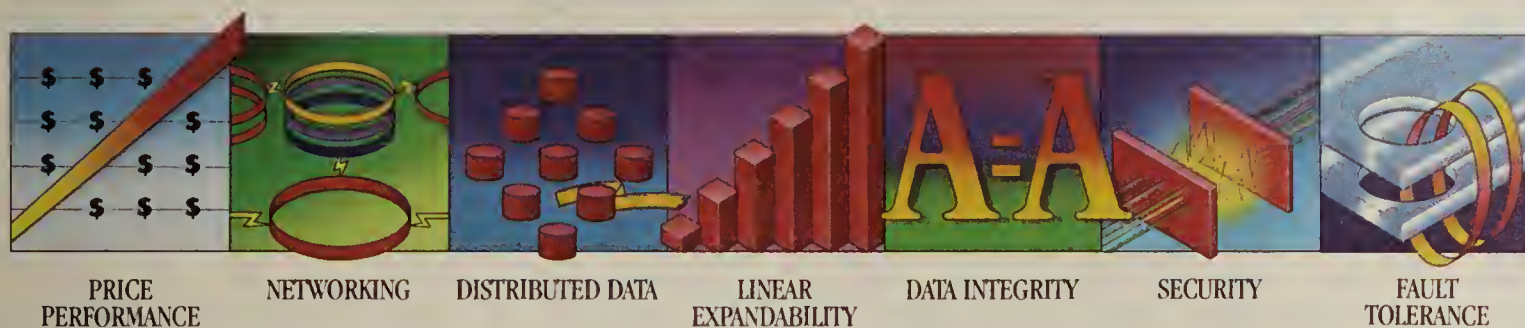
Evans is currently wrestling with ways to prevent newly trained workers from being recruited elsewhere. "It's not necessarily money, we know that," he says. "It's how you treat people."

Arbitron is finding success in giving MIS employees the opportunity to attend outside seminars and be involved with similar professional activities. Evans says he strives to keep his staff active and challenged on the job as well, which he says they clearly want.

"You have to create small project teams and then step back and let them get the job done," he says. "Our way, you do more than on a large project and don't feel trapped in one narrow area."

MICHAEL BALL

OLTP fundamentals.



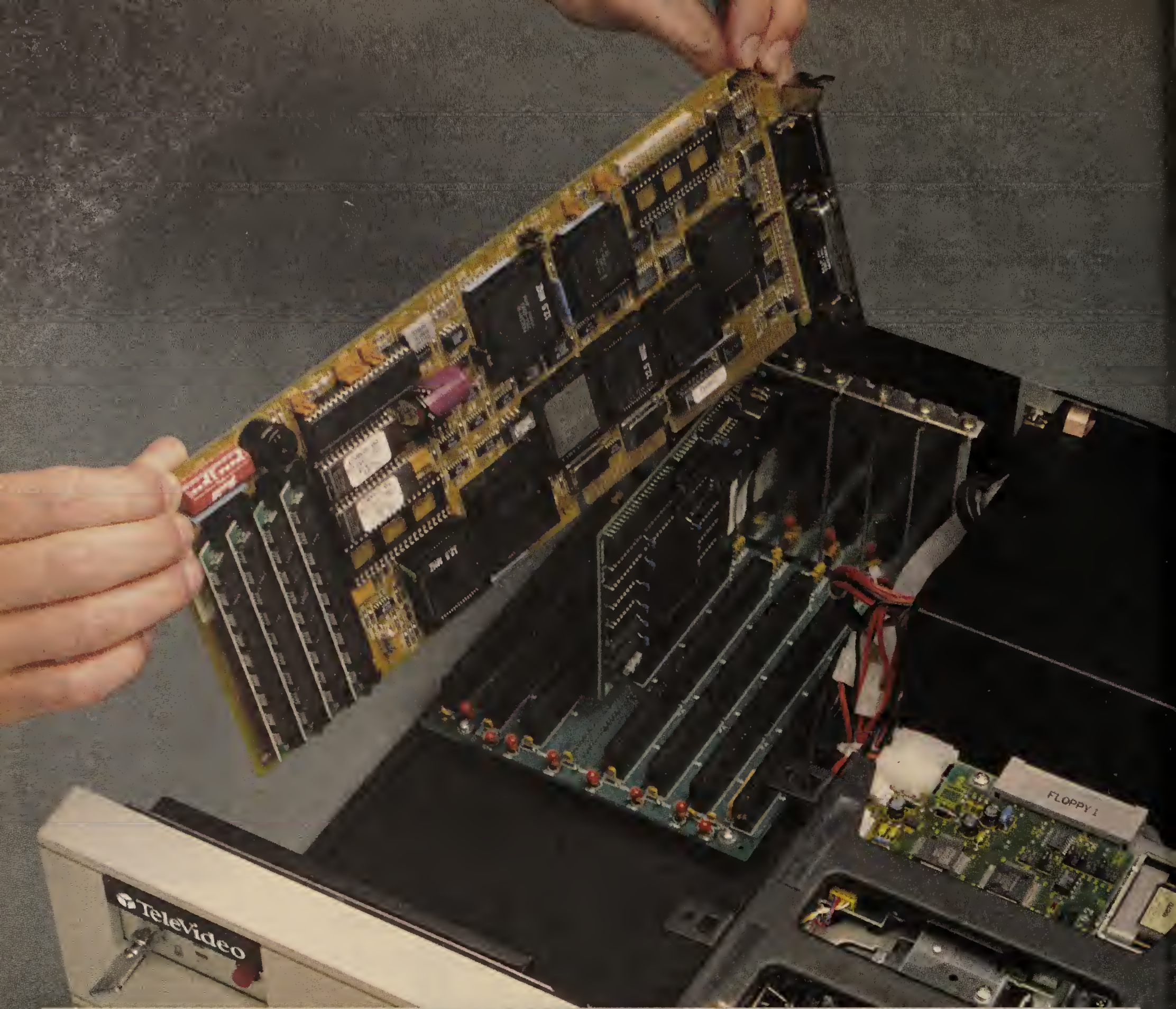
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Programmers: *Not a breed apart*

Stereotyped personality defects are far from unique to the field

BY BRETT MIDDLETON

Proponents of robotics warn that computers can be hazardous to our mental health and emotional well-being. They tell us that programmers who spend long hours at their terminals learn to respond to the world as they do on-line.

Do programmers expect instant gratification in all things? Are they impatient, uncompromisingly logical and, as a result, uncreative?

Tim Lynch's use of a few personalities — stereotypical "computer nerds" — to indict the effect of computers on society strikes me as a backward view of the problem [CW, Oct. 19, 1987]. The personality traits he discussed do not im-

press me as being even remotely unique to programmers.

I am an intensive computer user and do have some of the personality traits mentioned, such as an occasional shortage of patience and less-than-ideal social skills. However, I had these traits long before I first touched fingers to a keyboard, which wasn't until I was in graduate school. My self-analysis may not be accurate, but I see no sign that my computer experience has exaggerated these behaviors.

Born that way?

Computing is not a very old field. I suspect that most programmers who have been in the field for several years were adults at the time of their first encounter with a computer, and I seriously doubt that their exposures to programming have been at all responsible for any radical change in their personalities.

I suspect that programming just happens to attract people who already feel a

large amount of frustration in social situations. They find they can withdraw into an environment in which they have a great deal of control — control they lack in their social lives.

Certainly this running away is not the healthiest approach to the problem, but you cannot lay the blame for fleeing on the destination.

If computers did not exist, then surely these individuals would withdraw into something else. Would they become mechanics and work under the hood of a car? Shepherders in the mountains? Night watchmen?

Some people in those professions probably chose their occupations for unhealthy reasons, but the occupation itself is not at fault. The worst you could say about these jobs is that they serve as attractive havens for social misfits.

I see computers as having the power and flexibility to enhance creativity, not stifle it. There is plenty of opportunity in programming for flashes of insight and creative problem solving. It is no less creative to analyze a problem for a computer solution than to analyze one for any other type of solution.

Debate, trial law and mathematics also require a disciplined, logical approach to problem solving. Do lawyers or mathematicians lack creativity?

Creativity is determined by the purposes for which a tool is used, not by the method of applying the tool. Have you ever seen nail art? Is the hammer used dif-

ferently for this purpose than for the purpose of fastening shingles to a roof? Certainly not,



MICHAEL BARTALOS

- Does programming draw certain types?
- Computers: The catalyst for creativity
- Rigid logic vs. sheer patience

yet very different amounts of creativity are involved.

Let me provide some examples of real-life problem solving.

Case A: Joe is a good professional programmer. When he wants to work with a new software package, the first thing he does is sit down and read the manual or at least browse through it extensively. When he gets an error message, he collects all pertinent information — with great attention to detail — and thinks the problem out before taking action. He often spends hours poring over obscure hexadecimal printouts in order to find the source of a bug.

Frankly, there aren't very many people out there like Joe — people who can correctly solve a problem in the least amount of time without making things worse first.

But his ability in this area does not come out of an expectation of instant gratification. On the contrary, it is because of his sheer patience in working things through. Joe may appear to get results quickly, but only because he handles a situation with a minimal amount of hysteria and wasted motion.

Case B: Fred is an ordinary business user of computers, a typical manager. Now here is a guy who really expects instant gratification. He won't take the time to pick up the manual for any reason, because he has to have an answer *right now*. Looking in the manual would take too much time. Instead, Fred will usually just call Joe. Fred has a thousand excuses for doing so, such as, "I can't find the information I want in these gobbledygook manuals," which means that he never learned to use an index and table of contents.

Of course, Fred is in such a tearing hurry for instant solutions that he can't take time to figure out exactly what it is that he needs to know. So Joe has to patiently tease the information out of him by asking a number of questions to define the problem clearly. Joe knows that Fred will often only read half of the error message to him over the phone, because Fred is in too much of a rush to really see the screen that he's looking at.

Fred also has a number of other interesting habits. For example, if a command produces an error, he will often issue the same command again in the same way, sometimes repeatedly. His intuitive, non-logical, "human" thought process seems to tell him that the command will work if he insists on it.

Even worse, sometimes Fred feels that he doesn't have time to even call Joe, much less pick up the manual. So he begins to play word association games, entering any and every command that pops into his mind. Surely one of them will get him the quick results he needs. When he finally has things totally hashed, then he'll holler for Joe to come fix it. By that time, he's created hours of work for Joe, but he's still in a rush, so he relieves his frustration by hovering over Joe and chewing him out.

Funny thing, but Fred seems to be treating poor Joe like an extension of the machine. Oh well, after all, Joe is supposed to be an expert in this stuff, right? We expect miracles from the shamans who understand the machines, even when they protest that what they do isn't magic.

But Joe had better not so much as hint that Fred has been proceeding in an unreasonable or irrational manner, because

IF COMPUTERS really do change their users, training them to think before acting and to consider several possibilities and alternatives, then more power to them.

Fred is nobody's dummy, and no snotty programmer is going to tell him that he's being careless, hasty or unobservant.

Real-life horror

In my experience, there are at least 10 "Fred's" in the world for every "Joe." I can give you dozens of real-life horror stories of just this kind of Fred behavior. If computers really do change their users, training them to think before acting and to consider several possibilities and alter-

natives, then more power to them. But the skills involved in programming are the same skills needed to do library research.

The inability to methodically state and research a problem may be "normal human behavior" — the yardstick of robopsychologists — but it is not necessarily desirable. And most of the people who can't solve a problem this way are just making excuses if they say, "Well, I guess I'm just the creative type."

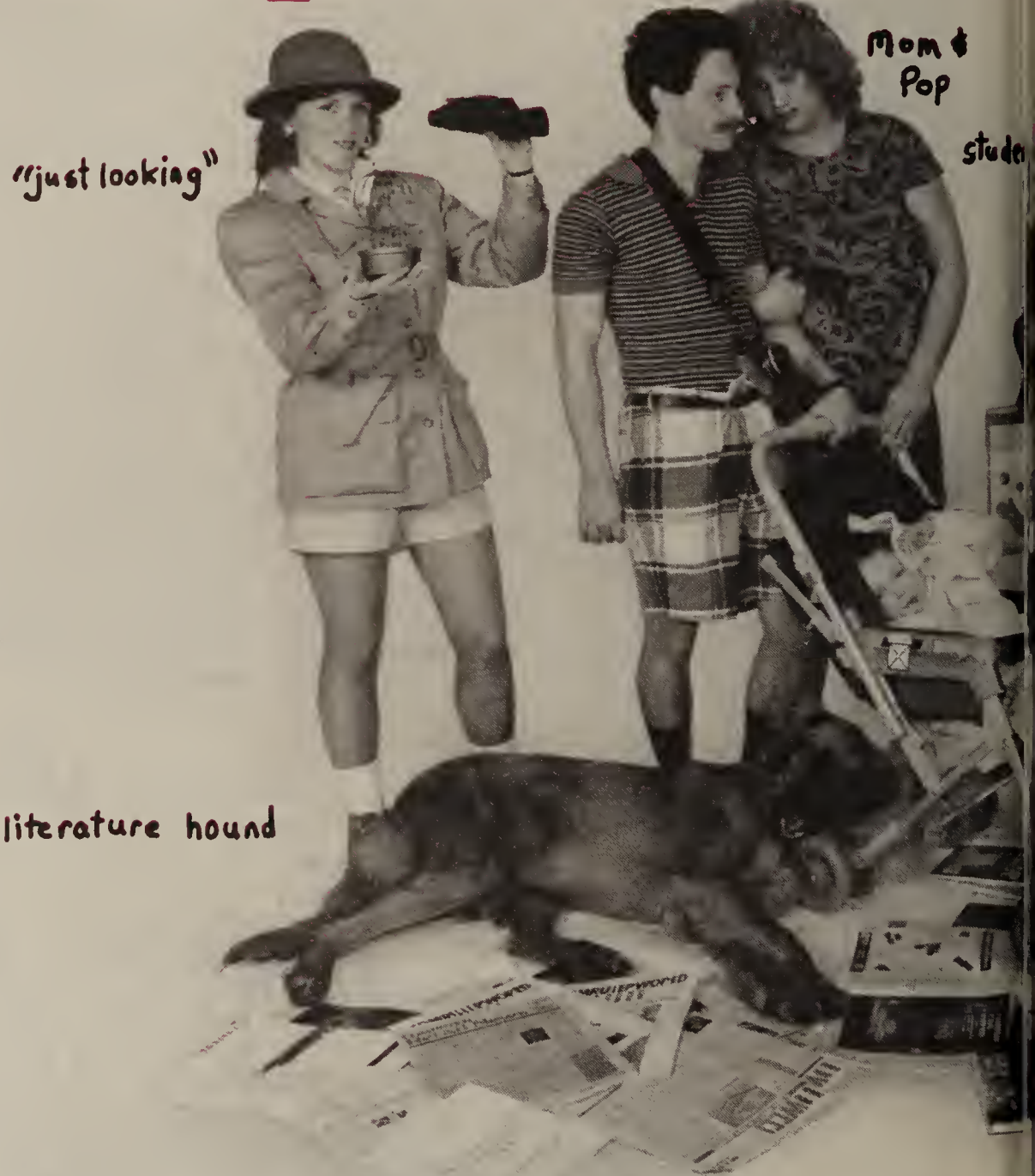
Robopsychologists also seize upon cul-

tural collisions, such as that which occurs between a programming team and a marketing department. These collisions occur because it is difficult for someone to approach his own field of knowledge from the outside. But one could also make the same observation about an engineering or biomedical research team.

Those who can overcome this handicap are rare in any field, which is why the career of science writing exists. How many Isaac Asimovs are there in the world? Criticizing an average programmer for not having above average communication skills is like telling your wife to stop humming around the house because she's not Beverly Sills.

Furthermore, sometimes users expect easy solutions to what are difficult

These People Are Not P



PC EXPO Welcomes Volume Bu

On June 21-23, PC EXPO in New York, the trade show *PC WEEK* names as "the industry's most important," once again welcomes the nation's Professional Volume Buyer community. For three days, Corporate Volume Buyers and Volume Resellers will meet with hundreds of their primary vendors to make the purchasing decisions that determine how their firms will stay on the cutting edge of microcomputer innovations and technology. **PC EXPO: The Professional Volume Buyer Show.**

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problems. Fred is often angry with Joe because Joe can't answer his question in 25 words or less. The question may appear simple to Fred, but the answer may involve things that took Joe many hours to learn. Is it reasonable for Fred to expect to absorb the benefit of Joe's learning without exerting the effort?

What if the answer that Fred wants can't be given without some prior knowledge? Fred often assumes that Joe is being deliberately obscure, difficult or condescending if he doesn't give him a snap answer. One solution to communication gaps and unfulfilled expectations is for marketing and technical staff to sit down together. Sadly, this approach requires time and patience, which may be in short supply on both teams.

Another conclusion of robopsychology is that programmers become devoid of emotional intensity. It strikes me that an emotional response can result from any job that a worker enjoys and does well.

Whose behavior is more acceptable: the emotionless programmer who acknowledges a problem and works calmly to correct it or the intuitive, creative thinker who curses at his screen and kicks his desk?

Personally, if I had to pick a behavioral extreme, I'd rather be overly rational than wracked by emotional storms.

Further research

For some time now, I've been observing behavior on computer bulletin board systems. There are thousands of these sys-

tems across the country on which users can leave messages and chat with each other on-line. These systems also come in a number of flavors. Some are meeting grounds for special-interest groups; some are general in appeal; and others are positioned as high-tech singles bars and swinger's clubs.

I think this is a fertile area for psychological research. I find it interesting to look at the ways in which people express their personalities (and emotion, perception or creativity) on these systems, especially in comparison with the impressions they make in person.

Many of these users are techies, but some are novices who know only enough to make a computer dial the phone. Some of these boards host extensive discussion

on topics that would qualify as robopsychology. There are some real insights available, at least for a layman like me.

I can recall seeing only one other study, about 10 years ago, on human interaction via computer messaging, and that one was limited: It did not deal with the wide range of age, intelligence and educational levels among the people who now have access to each other on-line. It also didn't address the unique public forum provided by message boards and multiparty chat, which I believe are outstanding innovations.

Seeking out opportunities

I don't think I'm exaggerating when I say that this could have a social impact that would make television seem as trivial as the hula-hoop. But unlike television, this is not a passive activity, and its effect on individuals who use it could be positive.

To borrow a line from Lynch's conclu-

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ARE WE NOW relegating ourselves to the level of the machine, or are we freeing ourselves from that role?

sion, computers are changing our society functionally and psychologically. But rather than concentrating on the hypothetical dangers of this transition, we should be looking for the inherent opportunities available.

Are we now relegating ourselves to the level of the machine, or are we freeing ourselves from that role? Not many years ago, the only way to solve complex mathematical problems in the "hard" sciences, such as physics, was to gather some graduate students and set them to punching away at mechanical adding machines for hours or days at a time. These students were exercising their fingers, not their creativity. Let's also keep in mind that the word "computer" originally referred to a job description, not an electronic device.

By thrusting the drudgery of calculation and data retrieval onto our computers, we free our attention and time for creative thought and social interaction. Researchers are free to find good solutions to problems rather than wasting creativity by searching for methods that are computationally feasible.

Today, we can tackle problems that we couldn't even dream of approaching before, because our computers are knocking down the barriers to our creativity. And far from imposing restrictions, the time we spend in front of a terminal can widen our social horizons by connecting us with the thousands of technical and nontechnical users who are part of the national electronic community. •

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MANAGEMENT

TAKING CHARGE

James Connolly

Learn basics before Basic



Something is missing in the American education system, and the result is a lot of computer users who do

not know how to use a computer.

The irony is that the person who cannot format a floppy can usually write a heck of a program. It looks like someone has placed the proverbial equine at the rear of the two-wheeled unmotorized vehicle: in other words, put the cart before the horse. People learn Basic without knowing the basics.

Recent conversations with young people moving into the work force revealed that a Basic language programming course was required in general high school and college curricula.

Those required courses, however, did not explore the differences among various types of computers, the roles of peripherals like disk drives or what can be done with packaged software.

One young person could program, but he had been so isolated from off-the-shelf software that he could not believe his neighbor had a word processing package that could slip into a floppy drive,

Continued on page 74

Taking pulse of MIS

Baxter's Heschel monitors quality of work life

BY JEAN S. BOZMAN
CW STAFF

MCGAW PARK, Ill.— Michael S. Heschel knows how to listen.

At Baxter Healthcare Corp.'s 250-acre complex here, Heschel is corporate vice-president of Information Resources and administers a budget of \$145 million for the \$6.2 billion hospital supply company's worldwide computer operations. But Heschel believes that one key element in his information systems strategy doesn't have a price tag — the creation of ongoing and effective communications with senior management, end users and 750 staffers.

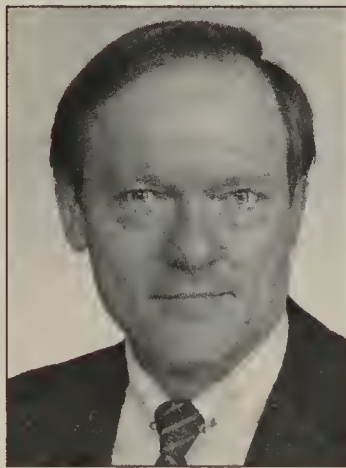
"We have a classical organization here, with a classical chain of command," Heschel, 46, says. "I have five people who report to me about our organization. But I've tried to create an esprit de corps by providing a challenging work environment, a good career path and some rewards. We have an open atmosphere, because people have to feel good about what they're doing to be productive."

Talking it up

Heschel goes about the task of communicating with information systems staffers in several ways: by holding quarterly "all-center" meetings attended by all information systems employees; by writing a biweekly newsletter called "FYI"; and by making himself available for discussion. He also attends departmental so-

PROFILE

Michael S. Heschel



Position: Corporate vice-president of Information Resources, Baxter Healthcare Corp.

Goal: To open lines of communication between systems and end users, keep MIS staffers' morale up.

cial gatherings and drops in on after-hours pizza parties.

Longtime associate Carl Steiner, who is Baxter's vice-president of planning and administration, says Heschel's extra effort to communicate pinpoints problems before they surface.

"You tend to hear the good news from your people," Steiner says. "But if you want to hear about whatever trouble is brewing, you have to aggressively go after it."

Heschel takes the affirmative course via monthly breakfast meetings attended by 10 to 15 people with a variety of job titles.

Continued on page 72

MIS TRAINING

Grooming managers pays long-term dividends

BY DANA DAVIS
SPECIAL TO CW

In the not-so-distant past, many MIS departments thought nothing of breaking in new managers via the sink-or-swim technique. And while some of the more technically oriented managed to stay afloat, others sank beneath the weight of their new responsibilities.

Gradually, companies awakened to the fact that new managers were not "a dime a dozen" and that the constant replacement of important personnel was costing valuable time, money and manpower.

Today, many corporations provide new leaders with extensive in-house and vendor-supported managerial training. Firms realize that high company performance is closely bound to managerial excellence.

"There is no way a company can improve unless it invests in the improvement of its individuals," says Alan Bignall, vice-president of corporate information services for IDS

Financial Corp., an American Express Co. subsidiary located in Minneapolis. "Companies that don't believe in the continued education of employees will only succeed in cutting their own throats," he says.

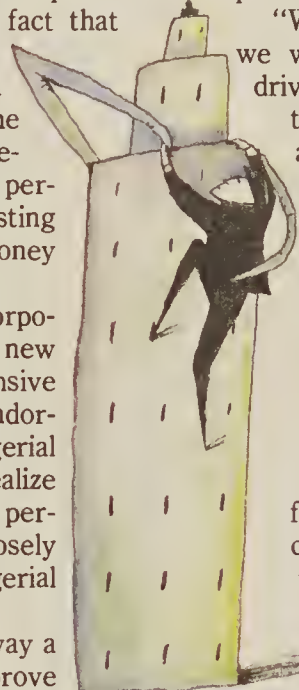
Bignall knows from whence he speaks. IDS first began designing management workshops about five years ago, when the company was purchased by American Express.

"We realized [that] if we wanted to be value driven, we would need to develop training and educational programs," Bignall says. "The purchase of IDS was the catalyst that pushed [the workshops] into action."

Today, MIS managers at IDS attend Supervisors College, a series of one- to five-day sessions focusing on the main responsibilities of a supervisor.

Topics that the supervisor will review include management of individuals, project teams and scheduling.

Continued on page 73



BLAIR THORNLEY

Inertia often stifles new technology

BY ALAN ALPER
CW STAFF

NEW YORK — Introducing new information technology without first restructuring the organization is one major reason many companies do not achieve productivity gains.

That was the prevailing sentiment at a recent seminar here concerning information technology's impact on organizational effectiveness. The seminar was sponsored by the United Communications Group in Bethesda, Md.

Productivity consultants emphasized that most companies do not reap the benefits of information technology because they do not build organizations that accept change and share in planning. Information technology

can enhance productivity and product quality once work flow and staffing requirements are changed, the consultants said.

"Technology is an enabler," said Winnie Rogow, a principal with Nolan, Norton & Co., a management consulting firm in Lexington, Mass. "Companies that use technology beneficially actually change the way work is done."

Tear down the wall

Although information technology expenditures per employee rose fivefold from 1980 to 1986, few firms have actually become more productive, Rogow stated. Many of the big spenders have been unable to achieve productivity gains because they did not break the wall between task and process automation.

"They created islands of automation for single tasks and only got an incremental return," Rogow said.

The problem starts with a lack of coordinated planning and an inability to restructure the work force prior to technological change. "People are reluctant to give up head count," Rogow said. "Part of the problem is the reward system: 'The more people I have, the more money I'll get.'"

Gerald Simonson, manager of technical and management information systems at Martin Marietta Corp.'s Information and Communications Systems Division in Denver, agreed. "A lot of companies keep budget responsibility for computer and office automation technology separate from labor," he said. "Of course,

every time labor goes and asks for a technology project to be done, they're suspect. The technical organization feels as if it's spending its budget on someone else."

One way to circumvent this problem is to create organizations that transcend functional departments, Rogow said. Companies must obtain accountability across all business functions if they are to harvest the fruits of technology. "Let everyone have skin in the game," Rogow said.

Soup to nuts

In order to do this, senior management must create multidisciplinary teams that guide the organization from planning through implementation. The resulting organization has cross-functional integration, Rogow said. "This is a first step in an eventual reorganization."

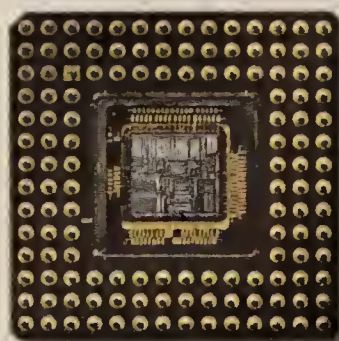
To achieve the maximum

benefits of office technology, organizations must first focus on the needs of the most critical employees, noted David Shay, a productivity consultant with Peat, Marwick, Main & Co. in New York. "We believe that 20% of employees provide 80% of an organization's value," he asserted.

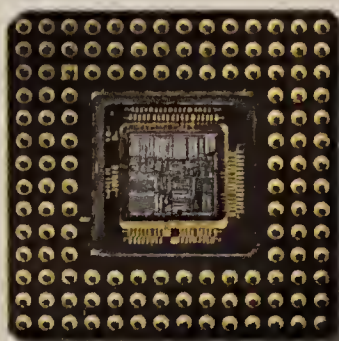
Peat Marwick's 80-20 ratio methodology allows companies to cost-justify office technology in terms of productivity prior to making any expenditures. The methodology involves intensive scrutiny of the entire company: its cost and organizational structure, production processes, competition and customers.

"The role of technology is not to replace workers with machines but to increase the quality, efficiency and competitive posture of the company," Shay said. "That invariably means increasing productivity."

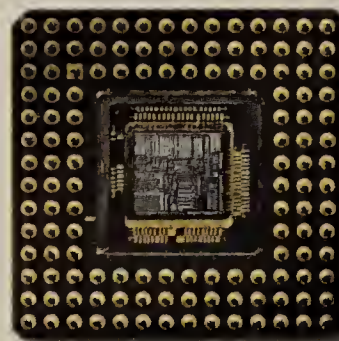
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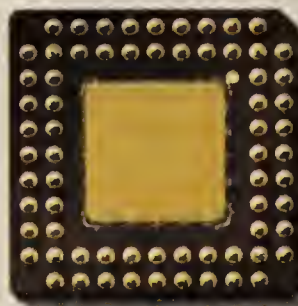
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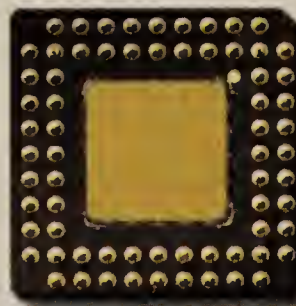
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Science Applications wins \$1B DOD contract

BY JAMES CONNOLLY
CW STAFF

WASHINGTON, D.C. — The U.S. Department of Defense last month brought to a close a nine-year planning, test and selection process by awarding a \$1 billion contract for a standardized, decentralized health care information system.

The eight-year contract, awarded to Science Applications International Corp. in San Diego, is for systems that will be installed at 754 Defense Department hospitals and clinics, supporting 53 million outpatients and six million inpatients throughout the world. The systems will be based on Science Applications' health care software and various Digital Equipment Corp. hardware platforms.

Science Applications won the contract after an 18-month competition with three other vendors in which the bidders ran on-site operational tests at four military hospitals. Those tests centered on a set of requirements known as the Composite Health Care System (CHCS) that were established by the Tri-Service Medical Information Systems Program Office during the testing of 100 commercial systems between 1979 and 1984.

According to the U.S. Army Information Systems Selection and Acquisition Activity, CHCS will automate seven major functional areas in hospitals and clinics: patient administration, patient scheduling, laboratories, radiology, pharmacy, nursing and clinical dietetics. The sys-

tem is also intended to provide communications, maintenance and operations support for those functions.

"CHCS is a revolutionary step forward for the Department of Defense. The ability to integrate our medical information and provide standard automated support worldwide through CHCS will change the way we provide health care in the DOD well into the 21st century," said Dr. Michael Mestrovich, director of the Defense Medical Systems Support Center, in announcing the pact.

Case of the MUMPS

Science Applications, which tested its systems at Ireland Army Community Hospital in Fort Knox, Ky., uses what it calls a "hosted cluster" architecture based on DEC minicomputers and the Massachusetts General Hospital Utility Multi-Programming System, better known as MUMPS. The company said the applications run on DEC VAX and PDP-11 minicomputers, personal computers and any other processor with ANSI-standard MUMPS. Science Applications is subcontracting \$400 million of the contract to DEC.

The largest DOD hospitals will be equipped with multiple DEC VAX 8550 superminicomputers, while DEC Microvax 3500s and PDP-11s will be installed at smaller hospitals and clinics.

In a smaller contract award, DEC won a \$100 million pact for patient-care systems at 104 Veterans Administration hospitals and clinics.

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22nd Annual ATA National Workshop and Computer Systems Demonstrations. Baltimore, April 10-13 — Contact: American Trucking Association Management Systems Department, 2200 Mill Road, Alexandria, Va. 22314.

8th IC&C Executive Forum. Washington D.C., April 10-13 — Contact: International Computers & Communications, P.O. Box 17392, Washington, D.C. 20041.

Associated Information Managers Annual Conference & 1988 AIM University. Boston, April 10-13 — Contact: Associated Information Managers, 10005 Rhode Island Ave., College Park, Md. 20740.

18th Conference on Computer Audit, Control and Security. Atlanta, April 10-15 — Contact: Program Chairman, EDP Auditors Foundation, P.O. Box 88180, Carol Stream, Ill. 60188.

Atre Forum on Relational Data Base & CASE. Washington, D.C., April 11-13 — Contact: Nancy Carafa, Forum Registrar, Atre International Consultants, Inc., P.O. Box 727, Rye, N.Y. 10580.

Focsimile & Image Communications Conference. Boston, April 11-13 — Contact: Cap International, Inc., One Snow Road, Marshfield, Mass. 02050.

Second Annual Logistics Conference and Technical Exhibit. Dallas, April 11-14 — Contact: American Production and Inventory Control Society, 500 W. Annandale Road, Falls Church, Va. 22046.

1988 AIIM Show. Chicago, April 11-14 — Contact: Association for Information and Image Management, Suite 1100, 1100 Wayne

Ave., Silver Spring, Md. 20910.

The Relational Institute DB2 Product Fair. San Jose, Calif., April 11-15 — Contact: The Relational Institute, Suite 106, 6489 Camden Ave., San Jose, Calif. 95120.

Spring 1988 National Symposium and Workshops. Washington, D.C., April 11-22 — Contact: The National Institute for Software Quality and Productivity, P.O. Box 70555, Washington, D.C. 20088

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Pulse of MIS

CONTINUED FROM PAGE 67

"I have some unwritten rules about the breakfast meetings," Heschel says. "I give them my personal commitment that no names will be used, and their staff managers are not present." That promise makes interchanges lively, something Heschel encourages, even in larger meetings.

The quarterly All-Center meetings feature two hours of formal discussions, followed by a question-and-answer period. But, Steiner notes, Heschel doesn't like the sessions to end in a polite silence. "There have been times," Steiner says, "when he didn't let the audience go until

they asked a few more questions."

What Heschel encourages is an environment in which quality and cost-effectiveness are highly prized commodities.

Following the 1985 merger of Baxter Travenol Laboratories, Inc. and American Hospital Supply (AHS) Corp., where Heschel was corporate vice-president of information resources, the combined staff was 850. Now, the staff has been cut to 750 — a level at which it should stay, Heschel says.

At that staffing level, quality of work is a key value emphasized by printed slogans on data center walls. As part of that quality effort, Baxter writes its most strategic applications programs, rather than buying off-the-shelf software. "I feel that it's a sign of weakness in the MIS organiza-

GOOD PEOPLE want a challenge, and I give them the responsibility."

MICHAEL S. HESCHEL
BAXTER HEALTHCARE CORP.

tion if that organization does not have the capability to do the development work required by its business," Heschel says. An exception to the rule about developing systems in-house, he says, might be a high-priority project with a short turnaround that exceeds the organization's staffing ability.

"Good people want a challenge, and I give them the responsibility," Heschel says. "Even when we use an outside consultant on a project, our people are always the program managers." The best efforts are sometimes rewarded with an evening on the town, paid for by Heschel, or with a \$2,500 check for outstanding work on a project.

Recent tasks at Baxter included the installation of 160 IBM Token-Ring local-area networks and IBM's Netview network management system, and the creation of query programs that enable managers to analyze timely data from IBM's DB2. Other programs are written for the company's array of Digital Equipment Corp. VAX minicomputers, which support scientific research as well as distribution activities.

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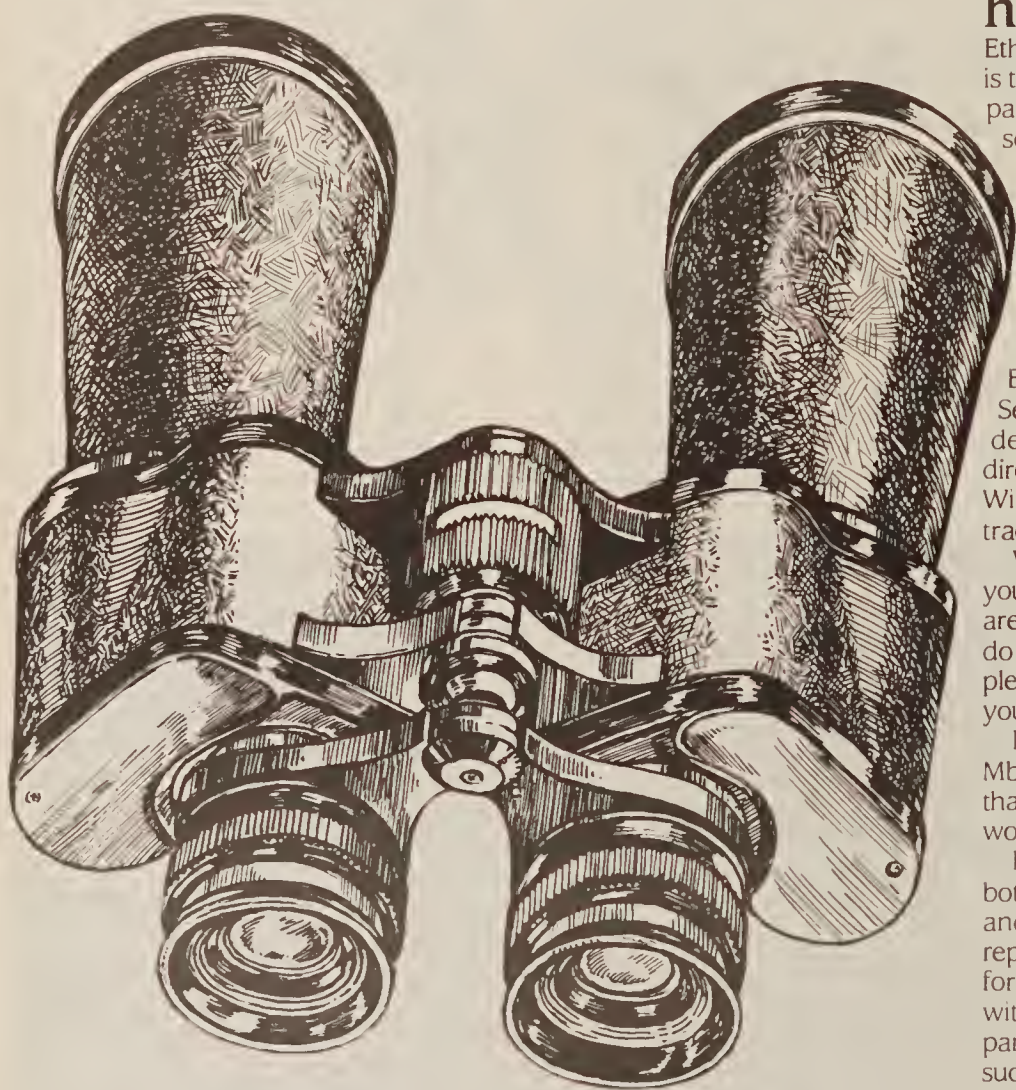
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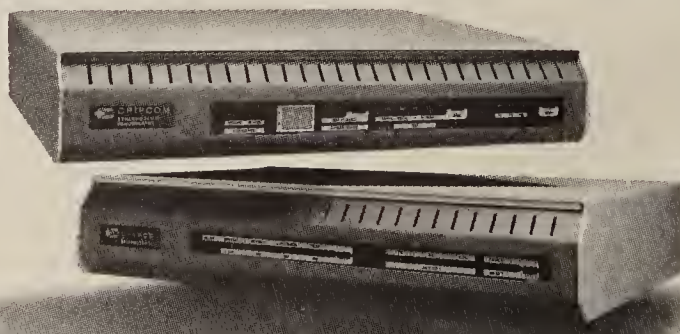
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The ultimate goal

Heschel's goal is to use information systems technology to create what he calls the "computer-integrated corporation," an infrastructure in which information is handled by both people and machines.

"I see the whole corporation layered according to function: research and development, engineering, manufacturing, distribution, sales and marketing and corporate administration," he says, reaching into the air to indicate a stack of functions. "I see very significant virtual links between these layers, for example allowing designers to have a view into the manufacturing and engineering process."

Maintaining that vision is just part of steering Baxter's information systems organization through the next five years, Heschel believes. At Baxter, the leveraging of raw data has already produced competitive advantages, such as the company's famed Analytic Systems Automated Purchasing (ASAP) order-entry system. While at AHS in the early 1980s, Heschel supervised the enhancement of ASAP, which now feeds hospital orders from 7,000 remote terminals into Baxter's 75,000-sq-ft computer room.

Getting the funds for new technology is one of Heschel's priorities.

"Mike has been able to show senior management how MIS could contribute to the business," said Bob Kretz, vice-president of systems development at Baxter, who has known Heschel for eight years. "He raised the visibility of the information systems function, and showed the executives how the corporation's business plans could be tied into those of the information resources group."

To sharpen his information systems strategy, Heschel spends about 30% of his time traveling to user sites, meetings with hardware vendors and meetings with his peers in other large corporations. "Mike doesn't take the surface answer from the sales and marketing people," Steiner says. "He digs for information from the vendors."

Heschel describes his role as being made up of four primary components: providing an architectural vision; ensuring that information systems meets end users' computing needs; providing cost-competitive information systems services; and ensuring that the information systems infrastructure keeps pace with changing needs.

Because Heschel's job is wide in scope, it has been likened to that of a chief information officer. "We don't have the CIO title here," Steiner observes, "but that's the closest description of what Mike does."

Grooming

FROM PAGE 67

In addition, the curriculum contains a segment on quality control and quality recognition.

After the manager has had time to put his training into practical use — approximately two years — he will then go through another program called Upward Feedback. "This is where the people who are being supervised get a chance to evaluate their manager," Bignall says.

The evaluations are done by anonymous questionnaires, which the manager reviews. Later, the manager receives a videocassette tape of actors playing out scenarios depicting the manager's weak points.

"First, they act out the incorrect way to handle the situation, and then they perform the right way," Bignall explains.

Setting the example

At Aetna Life and Casualty Co. in Hartford, Conn., the "right way" to educate managers includes providing them with a good example from senior management.

As a result, Aetna now offers a course that "concentrates on the difficulties of managing managers," says Bill Zeigler, corporate director of management education and general skills. The course was designed to improve the senior managers' delegation, influence and communication abilities.

Before the course begins, the manager is critiqued by his subordinates, peers and supervisors. Then, during the workshop, "he will concentrate on those skills that need improving," Zeigler says. "Senior managers take this course within the first six months of assuming their new positions," he adds.

In total, Aetna offers its managers a three-tiered training program, which includes the new middle manager, the experienced middle manager and the



IDS Financial's Bignall

advanced manager courses.

Both the new middle manager and the experienced middle manager schools are taught internally four times a year. Each school lasts for three days, and approximately 100 managers attend each school annually, Zeigler says.

He adds that the advanced manager school spans nine days and is conducted three times a year. Outside vendors take part in instructing the 135 senior

instruction or classes taught by actual Aetna personnel work well because "people can always call up the Aetna employee who presented the material with any later questions they might have."

Although internal trainers are far more accessible than their outside counterparts, sometimes vendors can provide more in the way of course diversity and "famous" experts.

For example, Walter Popper, director of the Index Group, Inc., an executive-level management trainer in Cambridge, Mass., points out, "We have access to a variety of presenters that corporations just don't have. We get top-quality professors from business schools such as Harvard, MIT and Columbia."

Popper offers courses in technology, business and interpersonal skills. He also requires participants to fill out self-assessment forms. "This helps people identify their thinking style. Technical people tend to

shop, but with subsequent promotions, that changes.

"We're finding situations where these new managers from information systems must make presentations to our users," says Brenda Wire, manager of management training at The Prudential Insurance Co. of America in Roseland, N.J.

Consequently, managers are strongly encouraged to participate in the company's public speaking class.

In addition, new information systems managers take a two-day course "that deals primarily with the information systems environment and situations that arise there," Wire says.

Prudential also makes use of an outside vendor that delivers consulting skills and project management workshops to new managers. "We've run these courses twice a year for the last three years. Approximately 60 people a year go through this training," Wire says.

She adds that "managers coming from an information systems background are very high achievers." Prudential helps them succeed further by offering an individual, in-house career-counseling session five times a year. "This is where management informs their good performers [who may also be managers] of career paths and promotions," she says.

Potential problems

While the typical corporate training program may provide numerous benefits to those who want to be upper level MIS managers, some feel it poses potential problems.

According to Joseph Berman, chief of electronic data processing placement at Robert Half of New York, Inc., "It might make some managers too slick, and fewer people will trust them. There's always the danger of elevating form over substance. For instance, one guy might take all these interpersonal training programs and end up looking



Prudential's Wire

really smooth. But he never actually gets anything done. And then you have this other poor guy, down in the trenches, doing all the hard work. He has no presentation skills, but he still gets all the work done. Unfortunately, he has no polished way of relaying what he's been working on all this time."

Despite this minor problem, Berman says the trend toward in-house managerial education will increase.

As a result, new managers in

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- Autonomous
- Technical
- Programming
- Individual performance assessment

Management environment

- Presentation
- Supervision
- Motivation
- Delegation
- Work group performance assessment

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people who come through the advanced manager program annually.

Not counting time away from the job, outside courses cost an average of \$250 per person per day, depending on the course, Zeigler explains.

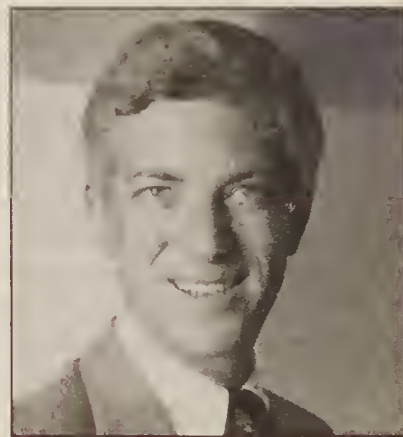
"We use a combination of internal and outside instructors because of the vast array of material presented at this level," he says.

Zeigler adds that internal in-

be more comfortable around ideas and analysis. That's why those managers with the technical background generally need to improve their presentation and interpersonal areas."

At the podium

Most companies recognize that these programmers-turned-managers tend to lack persuasive speaking skills. They were not called upon to use them too often in the data processing



Index Group's Popper

MIS will no longer need to endure sink-or-swim performance evaluations. Instead, they will feel more confident knowing they can take advantage of top-notch educational programs that will enable them to sail through corporate waters and chart a smoother course for their future departments.

Davis is a research analyst with Information Data Search, Inc. in Cambridge, Mass.

Continued from page 72

Data 88 With Telecom. Stockholm, April 11 — Contact: MMS Datamassor AB, Box 4113, S-181 04 Lidingo, Sweden.

International Programmable Controllers Conference. Detroit, April 12-14 — Contact: Engineering Society of Detroit, 100 Farnsworth, Detroit, Mich. 48202.

AM88, The Automated Manufacturing Exhibition and Conference. Greenville, S.C., April 12-14 — Contact: State Board for Technical & Comprehensive Education, Special Events Management, 11 Executive Center Drive, Columbia, S.C. 29210.

Cost Containment: The 1988 Imperative. Washington, D.C., April 13 — Contact: Corey Green, The Yankee Group, 200 Portland St., Boston, Mass. 02114.

The Information Edge. New York, April 13-14 — Contact: The Conference Board, Inc., 845 Third Ave., New York, N.Y. 10022.

Association of Banyan Users International Spring Conference. Cambridge,

Mass., April 13-15 — Contact: Jennifer Kerr, Association Manager, Association of Banyan Users, 75 Union St., Sudbury, Mass. 01776.

Success on the Line: Manufacturing in the 90s. Stanford, Calif., April 16 — Contact: The Manufacturing Conference, Graduate School of Business, Stanford University, Stanford, Calif. 94305.

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Association for Systems Management Annual Systems Conference. San Diego, April 17-20 — Contact: ASM, 24787 Bagley Road, Cleveland, Ohio 44138.

Info Canada '88. Toronto, April 18-19 — Contact: Data Processing Management Association, P.O. Box 1004, Postal Station F, Toronto, Ont., Canada M4Y 2L4.

Information Industry Association Spring Conference & Exhibition. New York, April 18-20 — Contact: Information Industry Association, Suite 800, 555 New Jersey Ave. N.W., Washington, D.C. 20001.

Tandy Computer Business Users'

Group Annual Conference. Fort Worth, Texas, April 18-20 — Contact: Michele Ryan, Radio Shack, 1700 One Tandy Center, Fort Worth, Texas 76102.

The DB2 Tools Symposium. New York, April 18-20 — Contact: Digital Consulting, Inc., 6 Windsor St., Andover, Mass. 01810.

Eastern Simulation Conference. Orlando, Fla., April 18-21 — Contact: The Society for Computer Simulation, P.O. Box 17900, San Diego, Calif. 92117

ISDN/88. St. Louis, April 18-22 — Contact: Information Gatekeepers, Inc., 214 Harvard Ave., Boston, Mass. 02134.

Comten Users' Exchange Spring Conference. Fort Lauderdale, Fla., April 18-22 — Contact: Dave Beran, CUE Coordinator, NCR Comten, 2700 Snelling Ave. N., St. Paul, Minn. 55113.

Advanced Manufacturing Systems Exposition and Conference (AMS '88). Chicago, April 19-21 — Contact: Cahners Exposition Group, P.O. Box 5060, 1350 E. Touhy Ave., Des Plaines, Ill. 60017.

Corporate Electronic Publishing Systems (CEPS) Show and Conference. Chicago, April 19-21 — Contact: Cahners Exposition Group, P.O. Box 3833, 999 Summer St., Stamford, Conn. 06905.

Third Annual BMC Software User Group Meeting. Houston, April 19-22 — Contact: Marianne Levandoski, AT&T, Room 51A40, 30 Knightsbridge Road, Piscataway, N.J. 08854.

ACH POS Seminar. Dearborn, Mich., April 20 — Contact: National Automated Clearing House Association, P.O. Box 64193, Baltimore, Md. 21264.

ANSI X12 EDI '88 Seminar & Technical Exhibit. San Francisco, April 20-21 — Contact: Data Interchange Standards Association, Meetings Department, Suite 355, 1800 Diagonal Road, Alexandria, Va. 22314.

Technology Opportunity Conference, Optical Storage for Small Systems. San Francisco, April 20-21 — Contact: Rothchild Consultants, 256 Laguna Honda Blvd., San Francisco, Calif. 94116

ID Expo — The Third Annual Confer-

ence and Exposition of Automatic Identification and Keyless Data Entry. Boston, April 20-22 — Contact: Anthony Scalisi, Show Manager, Expocon Management Associates, Inc., 3695 Post Road, Southport, Conn. 06490.

Institute for Graphic Communication Conference: Color Hard Copy. Downers Grove, Ill., April 20-22 — Contact: Lynn Bouthillier, Conference Registrar, Institute for Graphic Communication, 375 Commonwealth Ave., Boston, Mass. 02115.

TEXPO '88. Anaheim, Calif., April 20-22 — Contact: Pacific Bell, Room 615, 140 New Montgomery St., San Francisco, Calif. 94105.

Computer Dealers and Lessors Association Spring Meeting. Palm Desert, Calif., April 20-23 — Contact: CDLA, 1212 Potomac St. N.W., Washington, D.C. 20007.

APRIL 24-30

Nucon:88. Nashville, April 24-27 —

Continued on page 74

Connolly

CONTINUED FROM PAGE 67

ready for work.

It is true that many, maybe most, colleges offer a principles of data processing course. But too often it is Basic that students are required or urged to take, frequently while sitting at a dumb terminal rooms away from a mysterious minicomputer.

While learning Basic certainly helps to expose future computer users to the concept of programming, the first step should be to learn what computers are all about and how to boot a personal computer, not to write a program that calculates compounded annual interest rates

SCHOOLS MUST teach the history of computing, outline functions of the key parts of a computer and walk students through word processors, spreadsheets, data bases and the like before approaching programming.

or prints out a 14-foot sign on form-fed paper.

Corporate America is no less guilty than educational America. Plenty of users have terminals and PCs on their desks but are limited to a single application with a handful of menu-driven activities, and they have no idea why the system does what it does. The burden rests on MIS to

encourage, not limit, computer use and user curiosity.

That does not mean MIS should train users to be hackers. Rather, companies should learn from those firms that have in-house programs for user education — programs in which everyone is encouraged to explore what computers can do for them.

For their part, schools must teach the history of computing, outline functions of the key parts of a computer and walk students through word processors, spreadsheets, data bases and the like before approaching programming. Some schools do this now, but it should spread to all of them.

The combination of a more computer-literate work force and a more open MIS group is a key element in any company's efforts to form tighter bonds between MIS and the general business organization, allowing the construction of strategic systems they need to survive in the 1990s.

Connolly is *Computerworld's* senior editor, management.

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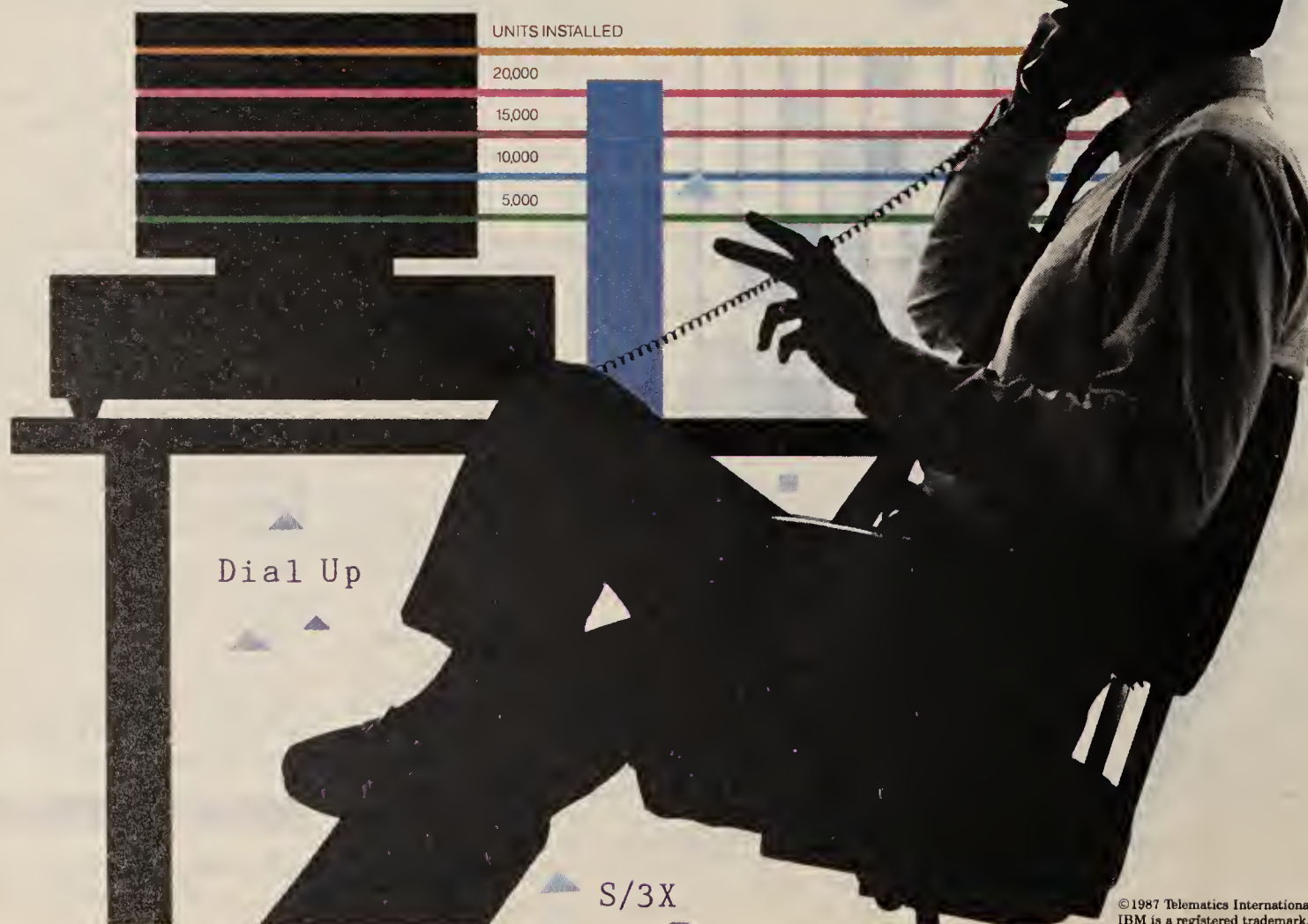
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Continued from page 73

Contact: Federation of NCR User Groups, Mail Station USG-2, Dayton, Ohio 45479.

Ingres Users Association Spring 1988 Conference. San Diego, April 24-27 — Contact: Program Committee Chairperson, Effective Systems, Inc., Suite 1-2, 2601 Wyoming Blvd. N.E., Albuquerque, N.M. 87112.

Computer-Based Training Conference & Exposition. Washington, D.C., April 24-27 — Contact: Computer-Based Training Conference, Weingarten Publications, Inc., 38 Chauncy St., Boston, Mass. 02111.

Common Spring '88 Conference: Managing Technology. Hollywood, Fla., April 24-28 — Contact: Common, Suite 600, 111 E. Wacker Drive, Chicago, Ill. 60601.

Techconnect West: The Wong-Comptible Trade-show and Conference. Los Angeles, April 25-26 — Contact: Data Base Publications, Suite 385, 8310 Capital of Texas Highway, Austin, Texas 78731.

Special Briefing and Workshop on the New Computer Security Act. Rosslyn, Va., April 26-27 — Contact: Advanced Information Management, 1988 Opitz Blvd., Woodbridge, Va. 22191.

HILOG '88. San Jose, Calif., April 26-27 — Contact: International Planning Information, Inc., 465 Convention Way No.1, Redwood City, Calif. 94063.

Distributed Network Computing. Cambridge, Mass., April 27-29 — Contact: Patricia Seybold's Office Computing Group, Suite 612, 148 State St., Boston, Mass. 02109.

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COMPUTER INDUSTRY

INDUSTRY INSIGHT

Stephen Jones

Sculley puts book in mouth



It's all there in black and white. And no matter what John Sculley says or does, he'll have trouble taking it back. Just crack open *Odyssey*, the Apple chairman's 1987 autobiography, and you'll find a classic case of someone sticking his foot in his mouth.

In the Pepsi-to-riches narrative, Sculley makes some comments that are disturbingly out of step with Apple's current hard-line stance against Microsoft. Beyond contradicting the rationale behind Apple's allegations of copyright infringement by Microsoft, Sculley's remarks confirm the problems Apple may face as a result of suing Microsoft.

Describing Microsoft's Windows as an environment that brings a graphics interface to IBM Personal Computers, Sculley wrote that a legal entanglement over Microsoft's use of the Windows system would only "bloody" Apple. "If we sued our most important software supplier [Microsoft], our business customers would think we'd lost our minds," he wrote.

Sure enough, current and potential Apple customers and third-party software developers have widely criticized the company for attempting to stymie industry innovation.

You said it, John

On the subject of whether Microsoft would move Apple's graphical user interface technology to the Microsoft MS-DOS world, Sculley preaches compromise, not conflict: "We had worked too hard to turn Apple around. Open warfare with Microsoft would destroy everything we had accomplished with our reorganization."

With that in mind, Sculley opted to license the Macintosh interface technology to Microsoft in November 1985 for use in a limited number of Microsoft products — including Windows.

So what was Sculley thinking when he and Apple blindsided the entire industry and dragged Microsoft into court?

Not only is the company fac-

Continued on page 76

Silicon Graphics gets infusion

CDC will inject \$68.9M into OEM partner in red-hot workstation arena

BY CLINTON WILDER
CW STAFF

MOUNTAIN VIEW, Calif. — Silicon Graphics, Inc. became the latest player to seat itself at the graphics workstation market's high-stakes table last week, announcing that OEM partner Control Data Corp. will acquire 20% of the company for \$68.9 million.

Minneapolis-based CDC, which has resold Silicon Graphics workstations as its Cyber 910 product line since late 1986, extended that OEM agreement for three years as part of the trans-

action. CDC will also gain a seat on the Silicon Graphics board of directors later this month.

The deal marks the year's second significant equity investment by a major computer systems vendor in a relatively young workstation manufacturer. AT&T agreed in January to acquire up to 20% of Sun Microsystems, Inc., also based in Mountain View, for \$300 million and also gained a seat on Sun's board [CW, Jan. 11].

While it will not touch off the industry uproar that the AT&T-Sun alliance created because of AT&T's potential for domina-

tion of the Unix market, Silicon Graphics' move demonstrates the fiscal imperative for players in the red-hot workstation market. Already ignited by Sun's phenomenal growth, the market recently welcomed two more potentially significant competitors, Ardent Computer Corp. and Stellar Computer, Inc.

"Capital is an important strategic weapon," said Richard Shaffer, president of Technologic Partners, a New York-based industry consulting firm. "Sun now has an enormous amount of money for a company its size,

Continued on page 77

Slow 9370 sales scar VM Software

BY MITCH BETTS
CW STAFF

RESTON, Va. — There's nothing like an 88% drop in quarterly

profits to make a high-flying company like VM Software, Inc. get a lot more conservative in its spending habits.

VM Software, the leading

vendor of systems software for IBM's VM operating system, is now recovering from a rough 1987, when it went on a spending spree under the mistaken assumption that sales of IBM's 9370 would take off, analysts and company executives said.

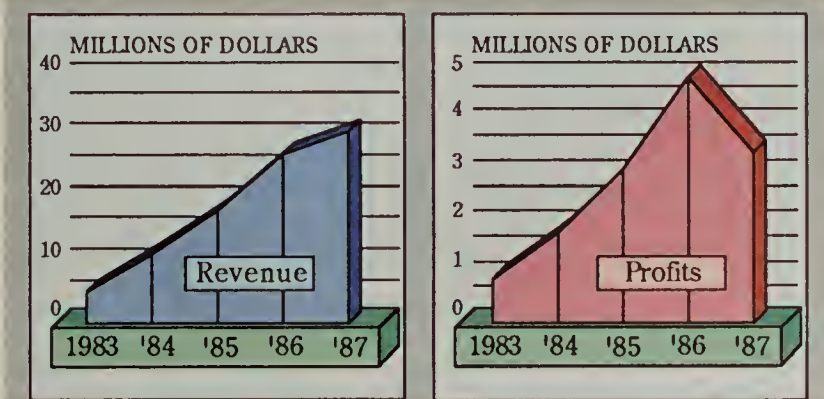
"We thought we were going to bring in a fair amount of 9370 business early in the year, and we spent money in anticipation of that business. The 9370 business didn't happen, and the spending of the money did," explained Robert E. Cook, VM Software's chairman and chief executive officer.

When IBM announced the 9370 mid-range processor in late 1986, it seemed like a dream come true for VM Software. At one whack, IBM had reaffirmed

Continued on page 77

Growth curve glitch

VM Software hitched its wagon to IBM's 9370 star, and 1987 profits fell 30%



INFORMATION PROVIDED BY VM SOFTWARE, INC.
CW CHART

Japanese threat makes strange bedfellows

BY CLINTON WILDER
CW STAFF

ANALYSIS

Is IBM so worried about Japanese competition that it would share its closely guarded chip-making technology with archrival Digital Equipment Corp.?

That question was raised in the industry last week in the wake of published reports that Big Blue offered to do just that last year, according to a new book by the U.S. Department of Commerce's former chief trade negotiator with Japan. In a rather vague reference, author Clyde Prestowitz Jr. wrote that in mid-1987, IBM approached DEC with an offer to "transfer

certain key technologies . . . to prevent DEC from falling even further into Japanese hands."

Was that offer, which apparently referred to chip-making techniques, truly a confirmation of IBM's global view that it must take an active role in helping its U.S. rivals counter the Japanese threat? Or was it simply an IBM attempt — unusual only because of the potential partner — to boost its revenue with a licensing agreement or sales contract? IBM makes most of its own semiconductors, while DEC is a major customer of the Japanese for its memory chips.

Industry observers interviewed last week expressed a full range of opinions. "IBM believes that the Japanese situation is

very worrisome," said Richard Shaffer, president of Technologic Partners in New York. "How can they prevent all the chip-making technology from going offshore? One way is to help a major U.S. company remain competitive."

Blue chameleon?

But according to Bob Djurdjevic, president of Annex Research in Phoenix, was more skeptical of IBM's motives.

"It's quite common to cross-license technology," he said. "All this flag-waving is just smoke. IBM runs ads in Britain saying how British they are, Charlie Chaplin speaks German in Germany, and in the U.S., IBM drapes itself in the Stars

Analyst: New era for industry

BY JAMES DALY
CW STAFF

BOSTON — The storm clouds that boiled over the computer industry for the past three years are drifting off, leaving a restructured, standards-based industry in their wake, a Montgomery Securities analyst claimed at a recent presentation to investors.

"The balance of power has shifted," said William Shattuck, head of computer investment strategy for software and services at the San Francisco-based investment firm. "We're transitioning toward an industry geared to standards-based products and open systems architectures where products must be interoperable with other vendors' products. Vendors just can't lock customers into proprietary systems anymore."

Shattuck said the growing pains of the democratization of companywide information resources were a key cause of the 1985 to 1987 industry slump. "Designing and constructing multivendor corporatewide information networks is extremely complex, expensive and risky," he noted. "It represented a huge challenge that affected traditional product and competitive strategies, priorities and technological direction."

Shattuck credited advances in networking and software portability as the primary impetus

Continued on page 77

and Stripes. [IBM Chairman] John Akers and his team are pragmatic businessmen; IBM would never hurt itself for the sake of a competitor."

What is apparent here is the degree to which the U.S.-Japan trade and technology situation throws an intense spotlight on what might otherwise be routine business issues in the U.S.

The truth, as usual, lies somewhere in the middle. IBM — like any large U.S. company — certainly does not want to see its entire industry dominated by powerful Japanese conglomerates closely aligned with the Japanese government. But it is hard to believe that IBM would do anything to help a U.S. competitor if the move did not also fill IBM's own coffers — particularly in light of Big Blue's problems in restoring its own profit growth.

Jones

CONTINUED FROM PAGE 75

ing a potential firestorm of objection from every corner of the computer business, but Apple is picking a fight with a company that has already threatened to pull out all the stops if faced with litigation.

In *Odyssey*, Sculley attributes a mighty strong threat to Microsoft Chairman Bill Gates, who, by the way, is characterized as looking like Woody Allen. In debating whether Apple would license the Mac interface to Microsoft, Gates reportedly offered an ultimatum: Microsoft would either receive access to the technology or stop "development on all

Mac products." Strong words, which apparently led Sculley to back away from a potential lawsuit.

What makes Apple's turnabout so hard to fathom is that most of Sculley's concerns still hold water today: Users are likely to be put off by Apple's attempt to wall in the Mac interface, and Microsoft holds a trump card as the top developer of Mac software.

A clue behind Apple's new posture might be this: Apple has made it big. Its profits are up significantly, it is no longer considered a toy maker, and the Mac has made some impressive inroads into the Fortune 1,000 as a business machine.

Now that the company has gotten its sea legs, maybe it feels it doesn't need some software developer from Washing-

ton State to prop it up. Growing at breakneck speed and with a zealotry for success that harkens back to the days of Steve Jobs, Apple is understandably a little cocky. That newfound confidence seems to have changed Sculley's initial belief that suing Microsoft would be akin to corporate suicide.

Now, if he can just find a way of sharing more details on this turnabout with the rest of us. But the way Sculley has been playing uncharacteristically mum on all this, we might just have to wait for another book from him. Maybe something like *Odyssey II: What I Really Meant to Say the First Time*.

Jones is a *Computerworld* West Coast correspondent.

INDUSTRY WEEK IN BRIEF

Survivors of former IBM executive **Philip "Don" Estridge** and his wife were recently awarded almost \$8 million in compensatory damages by a federal jury in a wrongful death suit brought against Delta Air Lines as a result of an August 1985 crash at Dallas-Fort Worth Airport.

During the proceedings, the jury heard testimony speculating that had Estridge not been killed, he could have joined the upper ranks of IBM management and that he had rejected top job offers from Apple Computer, Inc. and Sun Microsystems, Inc. [CW, March 14].

According to the attorney for the survivors, Delta has asked for a new trial.

Computer lessor **Capital Associates, Inc.** has withdrawn its unsolicited bid to acquire office products manufacturer **NBI, Inc.** for \$7 a share, or about \$62 million, one week after NBI said it was not interested.

Oracle Corp. continued to set the software world afire last quarter by coupling a huge leap in net income with a continuation of at least doubling its revenue in every quarter as a public company. Net income for the third quarter ended Feb. 29 increased 169% to \$13 million, while revenue for the Belmont, Calif., firm jumped to \$76.3 million, a 119% increase.

Filling a five-month vacancy, **AT&T's** Data Systems Group recently appointed a former IBM marketing executive to head its 1,000-employee national computer sales organization. Gordon J. Bridge, 45, who was group director of IBM's U.S. Marketing and Services Group, joins AT&T as vice-president of national data sales.

Unisys Corp. may boast the power of two, but **MIPS Computer Systems** is prepared to go it one better. On the day it unveiled a powerful new reduced instruction set computing chip with one hand, the Sunnyvale, Calif., firm rolled three semiconductor partners — Integrated Device Technology, LSI Logic Corp. and Performance Software — into a single software company with the others. The newly created Synthesis Software Solutions, Inc. starts off with a kitty of \$10 million and will acquire, modify and distribute third-party software packages for machines that will run on MIPS' new R3000 chip.

Network Management, Inc. continues to let its wallet do the talking. The Fairfax, Va., systems integrator has announced the acquisition of telecommunications systems designer **Programmatics, Inc.**, which it will in turn merge into recently purchased **CRC Systems**. Programmatics is also based in Fairfax.

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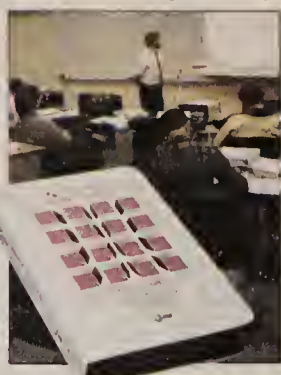
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VM Software

CONTINUED FROM PAGE 75

support for VM, set a goal of selling 5,000 9370 units in 1987 and, VM Software executives thought, opened a new market opportunity.

But 9370 sales reached only an estimated 3,500 units last year. Although IBM has claimed that the system has met its worldwide sales forecasts, analysts and users reported that the 9370 lacks the necessary applications and connectivity software to make sales take off.

As a result of its mismatch between spending and revenue, VM Software's profits took a nosedive in mid-1987 and are only now beginning to revive. The

company hit bottom in the second quarter, when its revenue of \$6.8 million generated a net income of only \$116,365, a drop of 88% compared with the year-earlier quarter. The combination of disappearing profits and the October stock market crash sent VM Software's stock from a high of 45 to a low of 7 last year; it is now trading at about 12.

"We spent too much money, and we didn't have enough sales people on board to do the job," Cook said.

Cook said the firm now has its spending under control. "We've basically been flat on expenditures since the end of June, and



VM Software's
Robert E. Cook

we plan to stay that way for a while," he said. In addition, VM Software replaced its senior marketing executive and boosted its sales staff.

In its most recent financial report, for the fourth quarter of 1987, the vendor showed signs of improvement with a profit of \$2.3 million [CW, Feb. 15]. "Profitability was solid, if not spectacular, and there was some reasonable revenue growth. So the

fourth quarter indicated that they've certainly started to get back on track," said Kenneth J. Burke, an analyst at Alex Brown & Sons, Inc. in Baltimore.

And VM Software is no longer banking

on the 9370. "If [the 9370 business] shows up in 1988, fine. If it doesn't, it'll be along in 1989. We're doing our plans based on our traditional business," Cook said.

Analysts applauded the firm's more conservative stance. "Even if 9370 sales are not yet robust in 1988, the company is in a better position for having learned from some of the mistakes of the past," said industry analyst Ulric Weil of Weil & Associates in Washington, D.C.

Meanwhile, the firm's aging VMbackup product is facing competition from two newcomers to the VM systems software market, Sterling Software, Inc. and Diversified Data Resources, Inc. But a major rewrite of VMbackup is slated for release this summer [CW, Nov. 9, 1987].

Silicon Graphics

CONTINUED FROM PAGE 75

and Ardent and Stellar are both well financed and could raise more [venture capital] easily. Silicon Graphics had to do something to take advantage of an emerging market that Ardent and Stellar have called attention to."

In addition to CDC, Prime Computer, Inc. also sells Silicon Graphics workstations on an OEM basis. Silicon Graphics receives half its revenue through indirect channels.

The stake in Silicon Graphics represents CDC's first major investment in a computer partner since its restructuring and cost cutting began two years ago.

Gil Williams, vice-president of CDC's Computer Systems Division, said CDC wanted to cement the relationship to work toward offering its technical customers a seamless environment from the desk top to its highest powered supercomputers.

"Our customers need good graphics capabilities with a lot of computer power behind it," Williams said. Silicon Graphics "have one, and we have the other. If you've got a common view of the world and you like each other, [an equity investment] makes sense, doesn't it?"

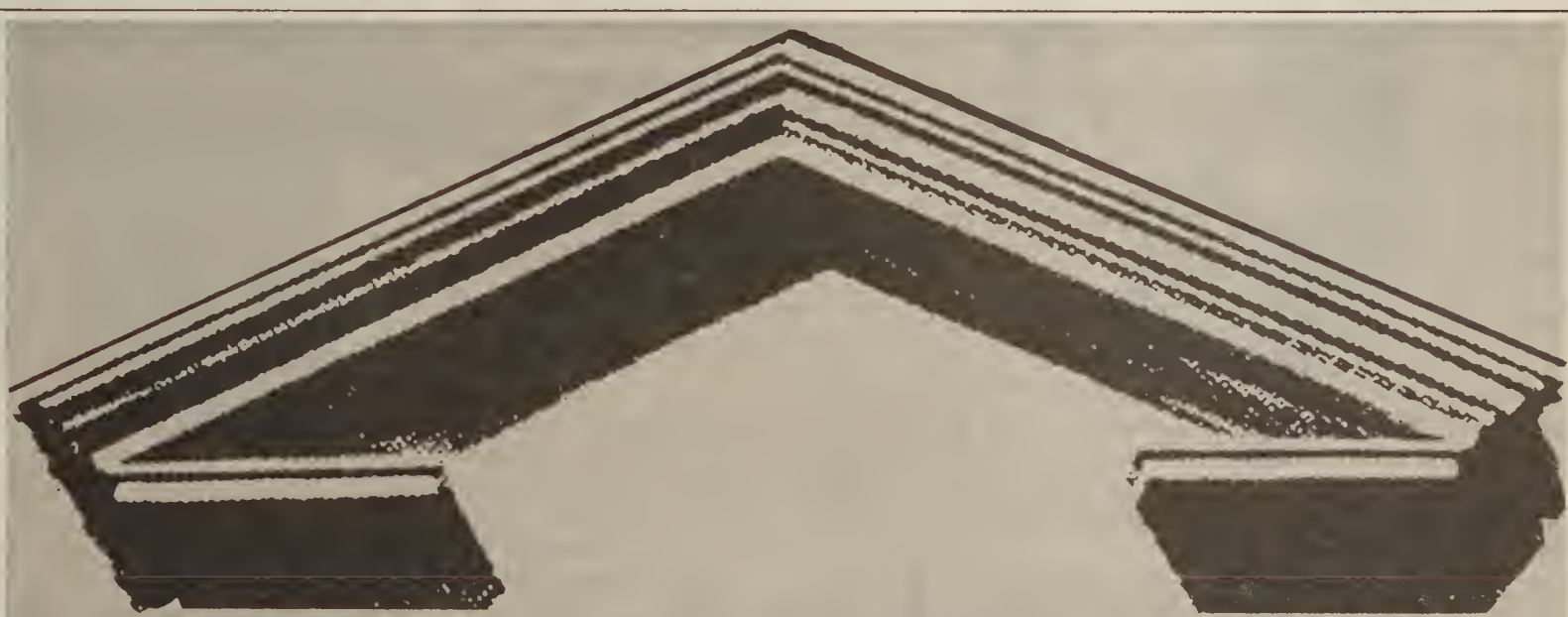
New era

CONTINUED FROM PAGE 75

driving the change. "We are just beginning to see the second generation of local-area networks," he said. "Where before they were toys not capable of supporting commercial operations, now they are an integral part of data integrity, system integrity and information backup. Likewise with advances in software portability."

While the restructuring period was painful — it brought the fabulous growth of systems vendors like Wang Laboratories, Inc. to a crashing halt and slowed down IBM for three years — it was not all-pervasive, Shattuck said. Many companies that rolled with the punches and adapted had stock growth greater than 300% for the three years. Firms like Microsoft Corp. and Novell, Inc. flourished, hitting a growth rate of better than 900%.

Shattuck said it is this new end user-driven strategy that will fuel growth into the 1990s. "Although all sectors of the industry will not participate in the growth — the minicomputer section is already too saturated — there will be no slow-down," he said.



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- Harold Shattuck, Partner, Montgomery Securities, formerly CEO of System Industries and VP of Amdahl
- John Hentrich, Executive Vice President, Phoenix Technologies Corporation
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COMPUTER CAREERS

When the headhunter calls

Recruiters can open doors, but there are pitfalls for the unwitting

BY ANTHONY REED
SPECIAL TO CW



Your office telephone rings, and it's another professional recruiter. Anyone with more than

one year of experience may be the target of data processing headhunters. A recruiter may sound like your friend but might turn out to be your foe.

Unscrupulous headhunters will use the "shotgun approach." They will revise your resume and mail it to local DP shops without your knowledge.

Mass mailings may seem appealing, but you increase the risk that your manager will learn of your activities.

An experienced recruiter will take a more direct approach and focus on specific companies that match your requirements.

These few tips can help you select a professional recruiter and use him to your advantage.

Who's calling?

First, remember that the phone caller may not be a recruiter.

Someone from your company may be acting as a recruiter in order to identify disloyal employees prior to determining pay raises, promotions or lay-off candidates.

Ask unsolicited recruiters for their company name, tell them you're not interested and say goodbye.

If you're interested, you can always get their telephone number from the directory and call them back.

It's nice to be needed

Remember that the recruiter makes a commission if you're hired. You're a commodity to be sold, but you're also in a position of power. Recruiters realize that while you can get a job without them, they can't make a commission without you.

Prior to meeting with a recruiter, prepare a list of specific requirements for your next position.

These might include job responsibilities, the chance to transfer within the company, the amount of overtime you're willing to work, geographical locations, benefit packages, hardware and software configurations, size of the company and DP shop and salary requirements.

Also indicate the companies that don't interest you and the ones you've already contacted.

This procedure narrows the search and lets the recruiter know that you're looking for something more substantial than just another job.

A good recruiter will ask for your resume and then interview you to determine whether it reflects your true skills.

He may even conduct a technical interview to let you get a feel for the questions his client

put and help him develop a long-term career plan.

When the recruiter rewrites your resume, demand to see it before he distributes it. You'd be surprised at the number of misrepresentations or typographical errors found on revised resumes. Some recruiters even misspell Cobol.

The resume is an extension and a reflection of you, and you are responsible for its content.

If he doesn't trust you with the client's name, why should you trust him with your resume and career?

Ask questions

Since the recruiter should be knowledgeable about the client's DP shop and the specific opening, he should be able to answer the taboo questions that you shouldn't ask the interviewer, such as the position's salary range, the shop's turnover rate, background information about the interviewer and how the position was created.

If an offer is extended, beware of a recruiter sneak attack: When the recruiter knows you are seriously considering taking another job, he calls your manager and tells her that she may have an opening in the near future.

And, of course, the recruiter has the perfect person who can fill that future opening.

On becoming the hunted

Your manager could go on a witch-hunt, looking for the unfaithful employee.

This tactic is used to pressure you into accepting the offer while also getting the headhunter a new client.

If you understand just what can go wrong in dealing with a recruiter, you're more likely to establish a mutually beneficial relationship based on knowledge, not just trust.

Reed is director of business systems for a Dallas educational institution.

REMEMBER THAT the recruiter makes a commission if you're hired. You're a commodity to be sold, but you're also in a position of power. Recruiters realize that while you can get a job without them, they can't make a commission without you.

may ask.

The recruiter should take an objective view of your situation. After reviewing your resume and conducting his interview, he should determine whether or not you're ready to leave your company.

Many programmers have fallen victim to overzealous recruiters who encourage job-hopping for the sake of a commission.

It's not uncommon to find a programmer with 10 years of rookie experience spread over five companies: Despite the years of experience, he never stayed long enough to get promoted or gain responsibilities.

A good recruiter would encourage the programmer to stay

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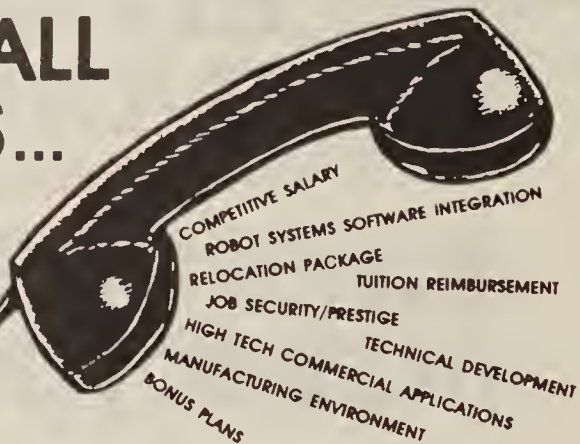
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MARKETPLACE

Forecast unseasonable for some

Apple market dips to new lows; IBM, Compaq show warming trend

BY CAMERON HALL
BOSTON COMPUTER EXCHANGE CORP.

There is nothing like a New England spring. One day it's like Miami, the next, Alaska. During the week ended March 25, the used computer market whipped itself into a frenzy of rapidly rising and falling prices, reaching Miami highs but also dipping to the lows of Alaska.

Apple Computer, Inc. computers led the roller coaster, with the Macintosh Plus plunging to a new all-time low retail price. The secondary market struggled to adjust to this new pricing from Apple dealers, who were making new machines available for \$1,350.

Although the full effect of this price reduction has not reached the used computer market yet, the early Macintosh models were down across the board. Increased confidence in the Mac SE and the Mac II pushed their prices up.

Prices of the former Mac favorite, the Mac Plus, were down again this week, off \$100 to close at a new low of \$1,150. Lower end Macintoshes also all closed down for the week following the drop of the Mac Plus, with the Mac 512E down \$75 to \$925.

The upside of the Mac market was with the Mac SE and the Macintosh II, with the SE get-

ting a boost with its flagship designation. The two-disk drive Mac SEs closed up, at \$1,850, and hard drive models gained ground and popularity, selling for \$2,300. Mac IIs are still the power user's machine of choice, although trading was slow during the week, with the machine

IBM's Personal System/2 line slowed to a snail's pace in light trading during the week. Even with the good deals available on all models, buyers prefer the older DOS-era models.

closing at a stable \$4,050.

IBM machines traded steadily all week with very few surprises. IBM's Personal Computer AT Model 339 moved around in the marketplace in small quantities, with buyers willing to purchase the equipment in large lots. Large lots were not available, however, and the Model 339 closed down \$50.

The PC AT Model 099 was steady all week, closing at \$2,400. The plain vanilla PCs

traded steadily at \$800, down \$50 from the prior week's close.

IBM PC XT's experienced an increase in demand, which acted to keep prices steady, although buyers are beginning to show reluctance at the current price levels. IBM's Personal System/2 line slowed to a snail's pace in light trading during the week. Even with the good deals available on all models, buyers prefer the older DOS-era models.

Compaq Computer Corp. computers remained popular, and buyers snapped up machines in an active market. Sellers upgrading to the new Intel Corp. 80386-based models continue to fuel the supply side of the market, giving slightly lower prices to those looking to buy these models.

Portable machines again captured the "most popular award," and the Compaq Portable I enjoyed steady trading conditions all week. It closed down \$25 from the previous week's \$850 as it followed price trends set by its IBM competitor. The Compaq Portable II has its own market niche and showed upward movement. It closed at \$2,175.

The exception to the activity in the portables was the Compaq Portable III, which had sparse trading even at reduced prices.

As for the Compaq Deskpro models, the original Deskpro hit

The BoCoEx Index

Closing prices report for the week ending March 25, 1988

	Closing price	Recent high	Recent low
IBM PC Model 076	\$800	\$900	\$625
XT Model 086	\$1,300	\$1,355	\$1,150
XT Model 089	\$1,625	\$1,750	\$1,500
AT Model 099	\$2,400	\$2,450	\$1,950
AT Model 239	\$2,750	\$2,750	\$2,500
AT Model 339	\$3,250	\$3,600	\$3,200
PS/2 Model 50	\$2,450	NA*	NA
Compaq Portable I	\$825	\$825	\$750
Portable II	\$2,175	\$2,250	\$1,975
Portable III	\$2,625	\$2,725	\$2,475
Plus	\$1,200	\$1,275	\$1,200
Deskpro Model 2	\$1,600	\$1,600	\$1,475
Deskpro 286	\$2,475	\$2,475	\$2,050
Deskpro 386	\$4,075	\$4,000	\$3,600
Apple Macintosh 512	\$725	\$800	\$650
512E	\$925	\$1,075	\$800
Plus	\$1,150	\$1,250	\$1,100
SE	\$1,850	\$2,200	\$1,800
SE 20 MHz	\$2,300	\$2,300	\$2,225
II	\$4,050	\$4,200	\$3,800
AT&T 3B2	\$4,200	\$4,500	\$3,500
Leading Edge Model D	\$825	\$825	\$450
Hewlett-Packard Laserjet	\$850	\$875	\$750

* Not applicable

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oversupply in a market with few buyers, and it had few trades. The Deskpro 286 monochrome 20-MHz system again closed at \$2,475, as buyers sought this workhorse for a desktop tool. Power users looking for a race-

horse rather than a workhorse pushed prices of the Compaq Deskpro 386 up \$75 to \$4,075.

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tem for the MISSISSIPPI DEPARTMENT OF
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sition of a computer engineering network
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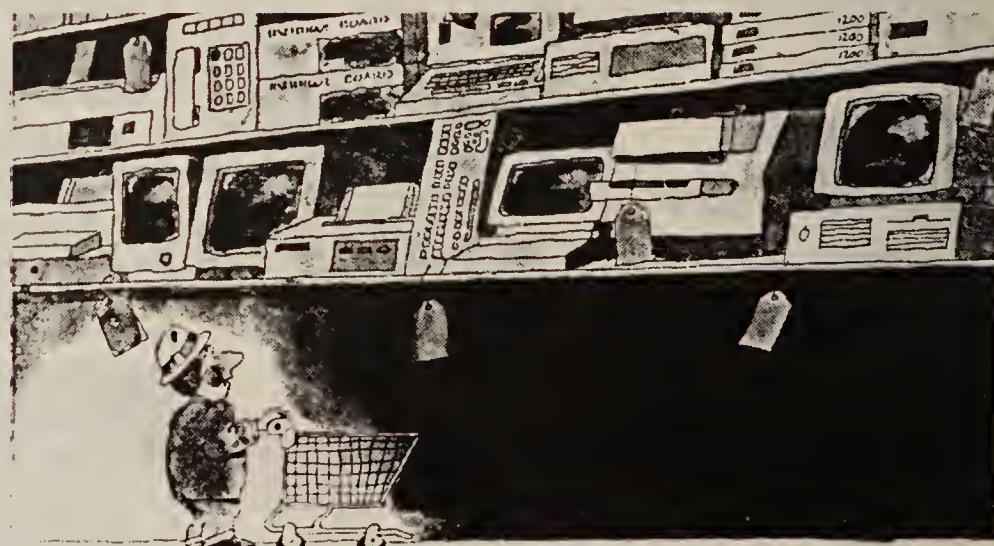
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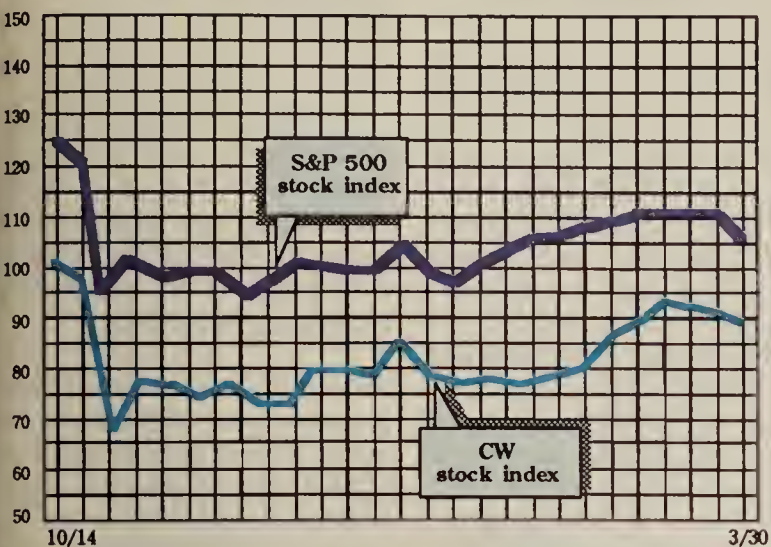
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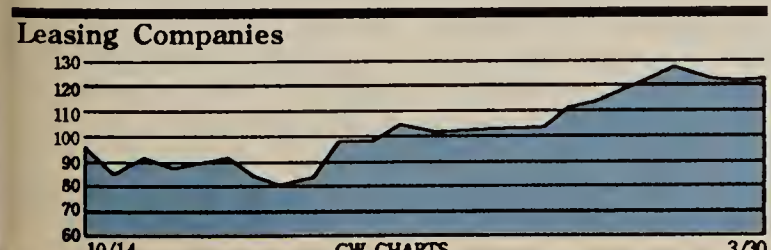
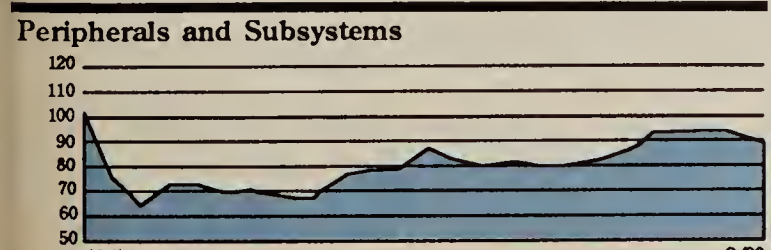
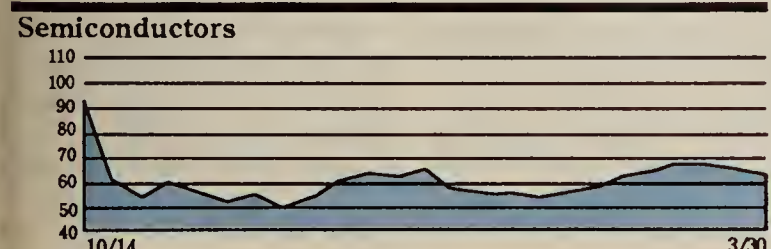
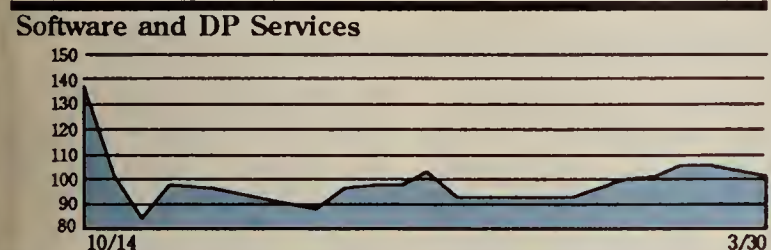
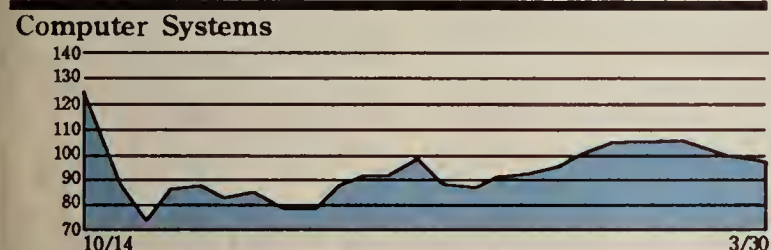
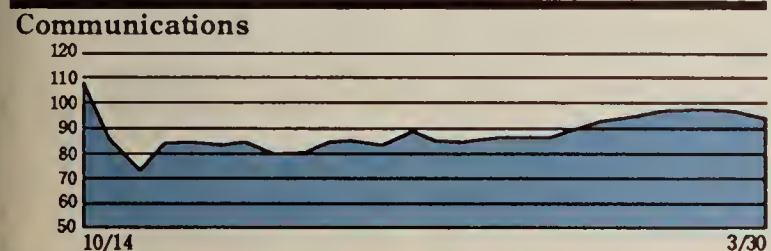
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May 23	Data Communications	May 6
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June 20	The SNA Market	June 3
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Peripherals & Subsystems	93.1	89.1
Leasing Companies	121.4	121.8
Composite Index	92.4	89.2
S&P 500 Index	111.5	107.0



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EXCH	52-WEEK RANGE (1)	PRICE CLOSE MARCH 30 1988	WEEK NET CHNG	WEEK PCT CHNG
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Communications and Network Services

N	AMERICAN INFO TECHS CORP	100	74	87.00	-4.6	-5.0
Q	ANDREW CORP	18	11	14.38	-0.9	-5.7
Q	ARTEL COMM CORP	3	2	2.00	0.0	0.0
N	AT&T	36	20	26.50	-1.8	-6.2
Q	AVANT GAROE COMP INC	6	2	1.81	-0.1	-3.3
Q	AVANTEK INC	17	6	6.88	-0.5	-6.8
N	AYOIN CORP	38	16	22.25	-3.3	-12.7
N	BELL ATLANTIC CORP	80	61	65.25	-4.8	-6.8
N	BELLSOUTH CORP	44	29	38.63	-1.4	-3.4
Q	COMPRESSION LABS INC	7	2	3.25	0.0	0.0
Q	COMPUTER NETWORK TECH	6	1	1.41	0.0	0.0
Q	CONTEL CORP	40	25	33.00	0.9	2.7
Q	DATA SWITCH CORP	10	4	8.25	-0.4	-4.3
Q	DIGITAL COMM ASSOC	49	20	31.00	-3.4	-9.8
Q	DYNATECH CORP	36	14	22.00	-1.3	-5.4
Q	FIBRONICS INTERNATIONAL INC	8	2	4.13	-0.4	-8.3
Q	GANDOLF TECHNOLOGIES	10	5	6.88	-0.1	-1.8
Q	GENERAL DATACOMM INDS	14	3	3.50	-0.3	-6.7
N	GTE CORP	45	29	36.50	-1.5	-3.9
Q	INFOTRON SYS CORP	12	5	9.00	0.3	2.9
N	ITT CORP	66	42	44.63	-1.8	-3.8
N	M A COM INC	16	7	10.50	-0.5	-4.5
Q	MCI COMMUNICATIONS CORP	12	6	11.00	-0.1	-1.1
Q	MICOM SYS INC	17	7	12.13	-0.4	-3.0
Q	NETWORK SYS CORP	16	7	8.50	-0.4	-4.2
N	NORTHERN TELECOM LTO	24	14	19.13	-1.0	-5.0
Q	NOVELL INC	30	12	20.63	-2.4	-10.3
N	NYNEX CORP	78	58	63.75	-2.6	-4.0
N	PACIFIC TELESIS GROUP	34	23	28.63	-0.8	-2.6
N	PARADYNE CORP	9	4	5.13	-0.3	-4.7
A	PENRIL CORP	6	1	4.25	0.1	3.0
N	PLESSEY PLC	40	23	29.25	-0.3	-0.8
N	SCIENTIFIC ATLANTA INC	20	8	14.63	-0.8	-4.9
N	SOUTHWESTERN BELL CORP	46	22	36.25	-1.3	-3.3
Q	3 COM CORP	26	12	19.63	-1.8	-8.2
N	TIMEPLEX INC	40	17	32.30	0.0	0.0
Q	UNGERMANN BASS INC	16	5	12.25	0.0	0.0
N	U S WEST INC	60	43	51.63	-2.1	-4.0

Computer Systems

Q	ALLIANT COMPUTER SYS	36	5	7.25	-0.6	-7.9
Q	ALPHA MICROSYSTEMS	6	3	4.50	0.0	0.0
Q	ALTOS COMPUTER SYS	15	9	10.25	-0.3	-2.4
A	AMDAHL CORP	50	19	32.13	-2.3	-6.5
Q	APOLLO COMPUTER INC	25	9	14.00	-1.1	-7.4
Q	APPLE COMPUTER INC	60	28	39.50	-3.0	-7.1
N	BOLT BERANEK & NEWMAN	26	12	16.50	-0.8	-4.3
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Q	CONVEX COMPUTER CORP	22	6	6.88	-1.1	-14.1
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Q	OASYS SYS CORP	11	5	7.38	-0.4	-4.8
N	DATA GEN CORP	37	16	22.38	-1.5	-6.3
N	DATAPoint CORP	9	3	4.75	0.4	8.6
N	DIGITAL EQUIP CORP	200	102	102.75	-8.6	-7.7
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N	GOULD INC	34	8	12.13	-0.8	-5.8
N	HARRIS CORP	43	22	29.50	-2.3	-7.1
N	HEWLETT PACKARD CO	74	36	61.00	-1.5	-2.4
N	HONEYWELL INC	91	49	63.63	-3.5	-5.2
N	IBM	176	102	105.13	-6.5	-5.8
Q	INFORMATION INTL INC	16	9	12.88	-0.1	-1.0
Q	IPL SYS INC	3	1	2.19	0.4	25.0
Q	MASS COMPUTER CORP	14	4	4.75	0.3	5.6
N	MATSUSHITA ELEC INOL LTD	216	93	214.75	2.0	0.9
Q	MEGADATA CORP	6	3	3.25	-0.1	-3.7
Q	MENTOR GRAPHICS CORP	39	14	25.25	-1.1	-4.3
N	NBI INC	14	4	6.00	-0.9	-12.7
N	NCR CORP	87	50	57.00	-2.0	-3.4
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N	ULTIMATE CORP	37	13	13.63	-0.8	-5.2
N	UNISYS CORP	48	24	32.25	-0.5	-1.5
A	WANG LABS INC	19	10	11.75	-0.4	-3.1

Software & DP Services

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Q	AMERICAN MGMT SYS INC	20	9	14.50	-1.8	-10.8
Q	AMERICAN SOFTWARE INC	22	6	12.25	-1.1	-8.4
N	ANACOMP INC	11	4	8.50	-0.5	-5.6
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Q	ASK COMPUTER SYS INC	16	6	12.25	-0.9	-6.7
Q	AUTO DESK INC	34	12	23.25	-1.5	-6.1
N	AUTO DATA PROCESSING	55	16	42.00	-2.3	-5.1
Q	BOOLE & BABBAGE INC	12	5	7.75	-0.5	-6.1
Q	COGNOS INC	4	8	7.88	0.0	0.0
N	COMPUTER ASSOC INTL INC	37	15	26.88	-0.9	-3.2
Q	COMPUTER HORIZONS CORP	15	7	10.00	0.1	1.3
N	COMPUTER SCIENCES CORP	73	42	47.25	-1.4	-2.8
N	COMPUTER TASK GROUP INC	17	9	10.63	-0.5	-4.5
Q	COMSHARE INC	28	12	16.75	-0.3	-1.5
N	CULLINET SOFTWARE INC	14	4	7.63	0.1	1.7
Q	OUQUESNE SYS INC	33	10	20.50	0.3	1.2
A	DATA ARCHITECTS INC	17	7	13.75	0.1	0.9
N	GENERAL MTRS (CLS E)	51	30	38.50	-1.6	-4.0
Q	HOGAN SYS INC	17	5	5.00	-0.3	-4.8
Q	INFORMIX CORP	31	12	19.25	-0.3	-1.3
Q	INTELLICORP INC	11	2	3.50	0.1	3.7
Q	KEANE INC	10	6	9.00	0.0	0.0
Q	LOTUS DEV CORP	40	19	22.50	-2.8	-10.9
Q	MANAGEMENT SCI AMER	18	6	5.88	-0.6	-9.6
Q	MICRO PRO INTL CORP	8	3	3.06	-0.3	-9.2
Q	MICROSOFT CORP	79	37	54.75	-4.3	-7.2
Q	MORINO ASSOCIATES INC	24	7	15	-1.0	-6.2
Q	NATIONAL DATA CORP	34	19	29.00	-2.0	-6.5
Q	ON LINE SOFTWARE INTL INC	22	9	11.00	-2.1	-16.2
Q	ORACLE SYS CORP	19	8	15.75	-0.3	-1.6
N	PANSOPHIC SYS INC	28	11	16.50	-1.1	-6.4
Q	POLICY MGMT SYS CORP	30	15	22.88	-1.4	-5.7
Q	PROGRAMMING & SYS INC	14	7	12.25	0.8	6.5
Q	REYNOLDS & REYNOLDS CO	38	14	21.25	-0.3	-1.2
Q	SEI CORP	18	10	16.50	-0.8	-4.3
Q	SHARED MEO SYS CORP	35	19	25.00	-0.1	-0.5
Q	SOFTWARE AG SYSTEMS INC	14	7	11.00	-0.4	-3.3
Q	SOFTWARE PUBG CORP	17	5	14.25	0.5	3.6
A	STERLING SOFTWARE INC	12	6	8.25	-0.1	-1.5
Q	SUNGARD DATA SYS INC	21	10	16.75	-0.5	-2.9
Q	SYSTEMATICS INC	32	19	31.50	-0.3	-0.8
N	SYS. SOFT INC.	24	7	14	-1.8	-11.1
Q	VM SOFTWARE INC	44	7	12.13	-0.6	-4.9

Semiconductors

N	ADV MICRO DEVICES INC	25	8	11.00	-1.3	-10.2
N	ANALOG DEVICES INC	24	8	13.13	-1.3	-8.7
Q	ANALOGIC CORP	13	5	7.00	0.0	0.0
Q	INTEL CORP	42	18	28.88	-2.9	-9.1
Q	LSI LOGIC CORP	17	7	9.88	0.1	1.3
N	MOTOROLA INC	74	35	44.00	-2.4	-5.1
N	NATL SEMICONDUCTOR	22	10	11.13	-1.3	-10.1
N	TEXAS INSTRS INC	80	36	46.75	-3.6	-7.2
A	WESTERN DIGITAL CORP	33	11	15.00	-1.8	-10.4

Peripherals

Q	ALLOY COMP.	13	3	4.25	0.6	17.2
N	AM INTL INC	9	3	4.00	-0.3	-5.9
N	AST RESH INC	21	6	9.75	0.5	5.4
Q	AUTO TROL TECH CORP	9	3	5.00	-0.3	-4.8
Q	BANCTEC INC	16	5	8.50	-0.3	-2.9
Q	CIPHER DATA PRODS INC	16	4	10.00	1.0	11.1
Q	COGNITRONICS CORP	5	2	3.63	0.0	0.0
A	COMPUGRAPHIC CORP	28	19	25.63	-0.3	-1.0
N	DATAPRODUCTS CORP	24	7	9.25	-0.3	-2.6
A	DATARAM CORP	8	5	6.25	-0.1	-2.0
N	DECISION INOS CORP	13	4	10.75	0.0	0.0
N	EASTMAN KODAK CO	71	40	40.75	-1.0	-2.4
Q	E M C CORP MASS	29	10	17.00	0.0	0.0
Q	EMULEX CORP	9	4	7.63	-0.3	-3.9
Q	EVANS & SUTHERLAND	35	18	19.25	-0.8	-3.8
Q	ICOT CORP	12	3	4.88	-0.1	-2.5
Q	INTERLEAF INC	24	11	17.25	-2.3	-11.5
Q	IOMEGA CORP	5	1	3.31	-0.2	-5.3
Q	LEE DATA CORP	9	3	3.63	-0.1	-3.3
Q	MASSTOR SYS CORP	6	1	2.75	-0.1	-4.3
Q	MAXTOR CORP	33	6	13.50	-0.5	-3.6
Q	MICROPOLIS CORP	44	13	23.00	-3.5	-13.2
Q	MINISCRIBE CORP	18	5	10.25	-0.6	-5.7
N	MINNESOTA MNG & MFG CO	84	45	57.63	-4.4	-7.1
A	MSI DATA CORP	29	12	24.13	-2.6	-9.8
Q	PERSONAL COMPUTER PRODUCTS INC.	7	4	5.69	0.2	3.4
Q	PRIAM CORP	6	1	1.88	-0.3	-11.8
Q	PRINTRONIX INC	13	7	8.75	-0.9	-9.1
N	QMS INC	27	8	10.88	-0.9	-7.4
Q	QUANTUM CORP	26	8	10.75	-1.3	-10.4
Q	RAMTEK CORP	6	1	1.44	-2.1	-58.9
N	RECOGNITION EQUIP INC	22	7	8.63	-0.8	-8.0
Q	REXON INC	14	5	7.63	-0.3	-3.2
Q	SCAN TRON CORP	17	7	15.25	2.8	22.0
Q	SEAGATE TECHNOLOGY	46	10	20.38	-1.6	-7.4
N	STORAGE TECH CORP	5	1	2.00	0.1	6.7
Q	TANDON CORP	7	1	2.25	0.1	5.9
A	TEC INC	7	3	4.88	-0.3	-4.9
N	TEKTRONIX INC	41	21	26.38	-3.4	-11.3
Q	TELEVIDEO SYS INC	3	1	1.19	0.0	0.0
N	TELEX CORP	92	30	49.13	-0.9	-1.8
Q	WYSE TECH	40	11	18.38	-1.3	-6.4
N	XEROX CORP	85	50	53.25	-2.9	-5.1
Q	XIOEX CORP	16	6	6.25	0.1	2.0

Presentation Manager pieces start shipping

BY STEPHEN JONES
CW STAFF

REDMOND, Wash. — Developers writing applications for Microsoft Corp.'s OS/2 operating system may find that the transition from OS/2 Standard Edition Version 1.0 to the Presentation Manager version will not be as simple as they had thought.

Thanks to changes in the Presentation Manager upgrade of Microsoft's OS/2 Software Development Kit, developers can expect to make source code-level changes to some programs written for OS/2 Standard Edition 1.0, the vendor said. Pieces of the tool kit, which includes the first release of Presentation Manager beta code, started shipping last week.

Source code reshuffling is required if developers want to move applications written for the character-based Standard Edition 1.0 to the graphics-oriented OS/2 Standard Edition Version 1.1 with the Presentation Manager, said Adrian King, director of marketing for systems software at Microsoft.

The conversion process takes about three hours and involves making changes in the code used for header files, from all capital letters to a mixed letter display.

Although King admitted that most developers are expected to move to the Presentation Manager development environment, he claimed that few companies will want to port existing OS/2 applications to the advanced graphics-based system.

"People are viewing the Pre-

THERE'S A whole bunch of bugs in it, but we're now at the stage where we're fixing them very fast."

ADRIAN KING
MICROSOFT CORP.

sentation Manager environment as the thing to target for development; most of the development will be starting from scratch," King said.

Microsoft officials said that developers using the tool kit for OS/2 Standard Edition 1.0 had been informed several months ago that some specifications would be changed in the Presentation Manager.

Developers will have to wait about three weeks to receive all

five components of the kit, which include the operating system, the Windows 2.03 Software Development Kit, Microsoft's C language compiler, other development tools and source code examples — about 32 disks in all.

Microsoft is recommending that users with the Version 1.0 development kit reinstall the Presentation Manager version because of its massive size. Users will need 15M bytes of hard-disk space and at least 3M bytes of memory.

Non-IBM cards in future

Developers will also find that some display adapter cards that work with OS/2 Standard Edition 1.0 will not work with the Presentation Manager tool kit. King said the package will only run with IBM or fully compatible display adapters but that future releases of the code will work with non-IBM cards.

As a beta-test copy, the Presentation Manager is said to contain roughly 200 bugs that developers will have to work around. But King said the presence of bugs in the early version does not mean the Presentation Manager is going to miss its October shipping deadline.

"There's a whole bunch of bugs in it, but we're now at the stage where we're fixing them very fast," he said.

The tool kits are being sent as free upgrades to the 4,000 users who paid \$3,000 last year to get a head start on OS/2 applications development with starter kits.

HP rebuffs Apple suit

BY CHARLES BABCOCK
CW STAFF

CHICAGO — A Hewlett-Packard Co. official charged last week that Apple Computer, Inc. filed suit to slow innovation when it realized competitors were about to launch windowing environments for IBM desktop machines that could outstrip Apple's Macintosh.

"I think the suit goes beyond the audiovisual display. I think it's an anti-user-friendly suit," said Rudy W. Batties, manager of HP's industry consultants program, before a session of the World Congress on Computing here.

The HP New Wave technology incorporates an object management system, an Agent Facility to automate the execution of tasks in the manner of a super-macro routine, built-in computer-assisted training and "encapsulation," or the capability to run existing Microsoft Corp. MS-DOS applications.

These, along with windowing features, will find their way onto IBM Personal Computers and Personal System/2-compatible machines, a fact that is threatening to Apple because it is still trying to get its Macintosh established in business offices. HP has a two-year lead on Apple in PC technology over and above windows, Batties claimed.

Furthermore, he said, Apple was a recipient of the first ver-

sions of New Wave in early March and sent a staff of 13, including lawyers, to HP's New Wave developers' conference in San Jose, Calif., March 16.

In discussions at the conference and in previous communications between the firms, there was no hint that Apple viewed the look and feel of New Wave as a violation of its proprietary technology, Batties said.

Says Apple altered screen

In an interview with *Computerworld*, Batties also charged that Apple needed to use a New Wave developer's tool kit to modify the appearance of the New Wave file management screen "to make it look much more like the Macintosh's" file management screen. Apple released pictures of the two screens dominated by file folders to support its contention that New Wave was borrowing directly from the Apple approach.

Batties said the New Wave version does not resemble the Apple version as closely as the pictures handed out to the press with the announcement of the suit would indicate. The pictures were run side by side in a San Jose newspaper without HP having a chance to point out the modifications, he said.

HP does not believe it is being sued over the look of its audiovisual display alone. "It's a major threat to stop [other] innovation," Batties claimed.

Dbase links with data on System/38

BY ALAN J. RYAN
CW STAFF

TORRANCE, Calif. — Ashton-Tate Corp. last week further nudged open the door to IBM minicomputer connectivity by announcing a software package that links its Dbase III Plus data base management system with data residing on the IBM System/38.

Dbase Direct/38 is a superset of the Dbase Direct/36 product announced last fall. The program allows users to view and use System/38 files from within Dbase III Plus as if they were Dbase files and offers the ability to join up to 32 files.

Highlights include more sophisticated manipulation of files, the ability to upload files to the System/38 CPU and the support of aggregate functions, said Shelley Symonds, System/36 and 38 connectivity product manager for Ashton-Tate.

Although Dbase Direct/38

and the System/38 marketplace are not strategically critical for Ashton-Tate, the latest niche product shows that Ashton-Tate's connectivity platform is progressing, according to Bruce Johnston, an analyst with First Boston Corp.

Priced at \$2,995 per System/38 CPU, the tool costs more than its System/36 counterpart, priced at \$1,695 per CPU. "We priced the System/38 product higher because there are typically more PCs connected to the System/38 than to the System/36," Symonds said.

The product will reportedly support any System/38 operating under CPF Release 8.0, an IBM System/38 operating system, and PC Support/38, an IBM-supplied utility that connects microcomputers to the System/38. It also requires an IBM Personal Computer, PC XT, AT, Personal System/2 or compatible system with 640K bytes of memory, IBM 5250 emulation, IBM PC-DOS 2.0 or higher and Dbase III Plus or Dbase IV, which is scheduled to ship in July. Dbase Direct/38 is set for availability in June.

The product will work with IBM's OS/2 when Dbase IV is available under that operating system, Ashton-Tate said.

Microsoft pledges protocol support

Third parties to write transports for LAN Manager to key protocols

BY STEPHEN JONES
CW STAFF

SAN FRANCISCO — Microsoft Corp. used a local-area network developers' conference here to rally support for its OS/2 LAN Manager last week, announcing development pledges from independent software vendors and detailing a plan to support key network transport protocols.

Quieting concerns that the LAN Manager may not be compatible with certain communications transport protocols, Microsoft enlisted the help of third-party developers to cover all the protocol bases for future networking environments.

Widespread compatibility will mean that corporate users can mix and match protocols and otherwise incompatible hardware when using the LAN Manager, said Paul Maritz, general manager of Microsoft's networking business unit.

Most notably, the LAN Manager will be able to work with IBM's upcoming LAN Server and current microcomputer LAN systems by supporting

IBM's network extended user interface program, also known as Netbeui. The LAN Manager will be linked to the ISO's Open Systems Interconnect environment through support of ISO Transport Class 4 and Transmission Control Protocol/Internet Protocol (TCP/IP).

Analysts praised the move to support both current protocols, such as IBM's extended user interface, and potential future standards, such as TCP/IP.

Too much to ignore

"There is too much TCP/IP and ISO transport out there for Microsoft not to support it," said William Shattuck, an analyst with Montgomery Securities in San Francisco. "It makes good technology and marketing sense for Microsoft to be working with these companies."

Two companies will team up with LAN Manager co-developer 3Com Corp. to provide an IBM extended user interface and an ISO transport. Madge Networks Ltd. will write the interface-compatible transport for the LAN Manager. Retix will use

its own ISO source code to develop an ISO protocol with 3Com. The version of IBM's interface reportedly will ship to OEMs in the second quarter, and the ISO package will be available during the fourth quarter.

On the TCP/IP front, Excellan, Inc. said it is writing the transport protocol for the LAN Manager. The TCP/IP protocol should ship in the fourth quarter.

Each transport is being written to Microsoft's Media Access Control interface, which calls for a standard method of writing low-level drivers for network adapter cards.

Twenty vendors at the conference announced product plans for the LAN Manager. The third parties included Consumers Software, Inc., which announced a package called Network Courier that supports Microsoft MS-DOS and OS/2 PCs running with the LAN Manager. Also, TLB, Inc. said it plans to release the Solomon III server-based accounting package, which will use the LAN Manager to connect to the package's front end on a workstation.

Cullinane

FROM PAGE 1

The fine-tuning included several other adjustments to the executive structure:

- Tuned out: Chapman, Cullinane's personally groomed successor, who took over the chairmanship in a much-publicized passing of the torch last fall. Chapman resigned from Cullinet, citing personal reasons and a desire to pursue other activities, but reportedly will continue to serve the company in a consulting capacity.

- Tuned up: President and Chief Operating Officer George W. Tamke, former IBM executive and Chapman recruit for Cullinet. Tamke will continue in his current offices but will handle an expanded portfolio, taking on development, legal, financial and administrative responsibilities, many previously handled by Chapman.

- Tuned in: John B. Landry III, who moves from executive vice-president of applications to the newly created position of executive vice-president of develop-

ment, with responsibility for all technical development, including that formerly presided over by David Litwack, executive vice-president of systems products.

- Stay tuned: Robert K. Weiler, executive vice-president and



George W. Tamke

group executive of Cullinet's Business Units, who made no formal appearance in the list of executive changes. However, according to Tamke, "Weiler's role will do nothing but expand in terms of responsibility and importance" in the new administration.

Early reaction from Wall Street — the clear target of the changes — was favorable. "The crisis is over; the organization will change; the products are solid. This is the beginning of the new Cullinet, Phase Two," said Bob Therrien, an analyst with Paine Webber, Inc. "The three key guys at Cullinet for some time have been George Tamke, John Landry and Bob Weiler, who is one of the best — if not the best — heads of sales in the software industry."

A new Churchill?

Chapman, Therrien said, was a good choice to preside over the transition, "but now the company needs a new kind of operating guy." He likened Chapman to Winston Churchill, who guided England through World War II only to find himself surprisingly out of favor in peace time.

"It's going to mean a lot to three constituencies: investors, customers and employees, all of whom want to think that their company will remain viable," said Mark Finley, an analyst at Stamford, Conn.-based Gartner Securities Corp.



John B. Landry III

Finley noted that Chapman's unstinting investment in research and development and acquisition of companies and product lines, intended to transform Cullinet from an IBM data base firm into a far-ranging software applications company, was badly balanced by his reluctance to pare the firm's head count.

On the other hand, Finley said, "people shouldn't run out and say, 'Hey, the savior's back.'" Cullinane, he said, "turned the company over to Chapman when it was already well into its profit problems."

Toward profits not only

gained but sustained, Tamke said, "What we've been about over the past 60 days is a very conservative — and I mean conservative — revenue plan for our next year, which starts on May 1, coupled with an equally conservative expenses plan."

Although he did not comment directly on the possibility of layoffs, Tamke said, "We are going to focus with laser-like intensity on every aspect of this company. If we find anyone or anything that can't be leveraged toward a profitable company, we'd better hear a pretty good reason why not. Nothing is sacred."

Market analysts registered little surprise at Cullinet's executive changes. When Cullinane actively returned to the company in the role of vice-chairman earlier this month, industry observers widely speculated that the former chairman, who owns roughly 7% of Cullinet's stock, was running out of patience with his designated corporate heir's continuing failure to turn a profit. As of the close of the first nine months of fiscal 1988, Cullinet showed \$152.3 million in revenue and a \$26.5 million net loss.

The wait for VM lengthens

BY ROSEMARY HAMILTON
CW STAFF

The long wait for IBM's high-end VM operating system is about to continue.

An IBM spokesman confirmed last week that the company had missed its target date of March 1988 for the general availability of VM/XA SP Release 1. A revised delivery date has not been set, he added.

The IBM spokesman said he could not comment as to why the first VM/XA is late but that the company would announce a general availability date early in the second quarter.

The missed deadline sparked industry speculation that VM/XA SP Release 1 may be replaced by VM/XA SP Release 2.

"I hear they were going to be late with Release 1, but meanwhile, Release 2 is supposed to be up and running in Kingston," said Wayne Robinson, manager

of software systems at Prudential Life Insurance Company of America. The IBM facility developing VM/XA is located in Kingston, N.Y.

Premature praise

IBM introduced both releases of VM/XA in mid-1987 and initially won high marks from VM users who have gone without a true high-end operating system for IBM 3090-class installations.

Release 2, originally scheduled for shipment in the first quarter of 1989, has far more functionality than Release 1, including the critical support of IBM's Systems Network Architecture. IBM recently moved the 1989 shipment date to December of this year.

Some large IBM shops contacted by *Computerworld* earlier this year said they would rather wait for the second, more complete release of the XA offering than install Release 1.

ISDN costs laid out in filing

BY ELISABETH HORWITT
CW STAFF

CHICAGO — Illinois Bell last week filed the first regular Integrated Services Digital Network (ISDN) tariff, giving business users their first glimpse at how much more they can expect to pay for services based on the digital telecommunications standard.

The Ameritech-owned divested Bell operating company's Centrex-like ISDN service, scheduled to become available this fall, will provide customers with up to 50 ISDN Basic Rate connections, all passing through the same central office switch. Each Basic Rate line supports

two 64K bit/sec. digital channels for circuit-switched voice and data plus a separate channel for packet-switched data.

Customers will pay a one-time charge of \$146 plus a \$16.58 monthly charge per line for up to 50 ISDN voice-only connections, Illinois Bell said. If a customer wants voice, data and packet-switched connections, each ISDN line will cost \$246.50 plus a \$29.68 monthly charge.

But according to Fred Chanowski, president of Needham, Mass., consulting company Telecommunications Management Corp., Illinois Bell's voice/data service "won't sell" at the current \$30 per-month per-line rate, particularly since businesses must also expect to pay \$500 in equipment for each ISDN voice/data connection.

"I would have been impressed by rates down in the low \$20s," Chanowski said.

Other routes

Local voice/data networking can be implemented at less cost through either a digital private branch exchange or a central office local-area network service, which is typically priced between \$17 and \$20 per month, according to Chanowski.

Illinois Bell's \$16.58 monthly charge for voice-only transmission cannot compete with current Centrex rates of \$10 to \$15 per line.

Illinois Bell's local ISDN service also includes usage-sensitive charges based on the amount of switching capacity Illinois Bell must provide to handle user traffic, Ron Czaplowski, the company's ISDN product manager, said.

IBM upping security level

IBM last week said it intends to upgrade its major mainframe operating systems and security systems to a higher level.

The company said it will present both MVS/ESA and VM/SP for a formal evaluation to the National Computer Security Center (NCSC), which is part of the National Security Agency, by year's end.

The firm said it will present VM/XA SP and RACF for that environment for formal evaluation by the end of 1990.

Computer Associates International, Inc. claimed IBM's plans are a response to its competing security systems products, which currently have a higher security level than RACF.

IBM is shooting for a B1 classification for its operating systems. The NCSC has established four major security classifications labeled A through D, with A reflecting the highest level of security and D the lowest.

Currently, IBM's RACF security product, as well as MVS/SP and RACF for the MVS/ESA environment, are under formal evaluation for a C2 classification. Computer Associates' Top Secret and ACF2 product have been officially approved as C2 products, according to Computer Associates.

The NCSC's C classification dictates discretionary access control by the user; its B classification is based on mandatory security procedures, Computer Associates said.

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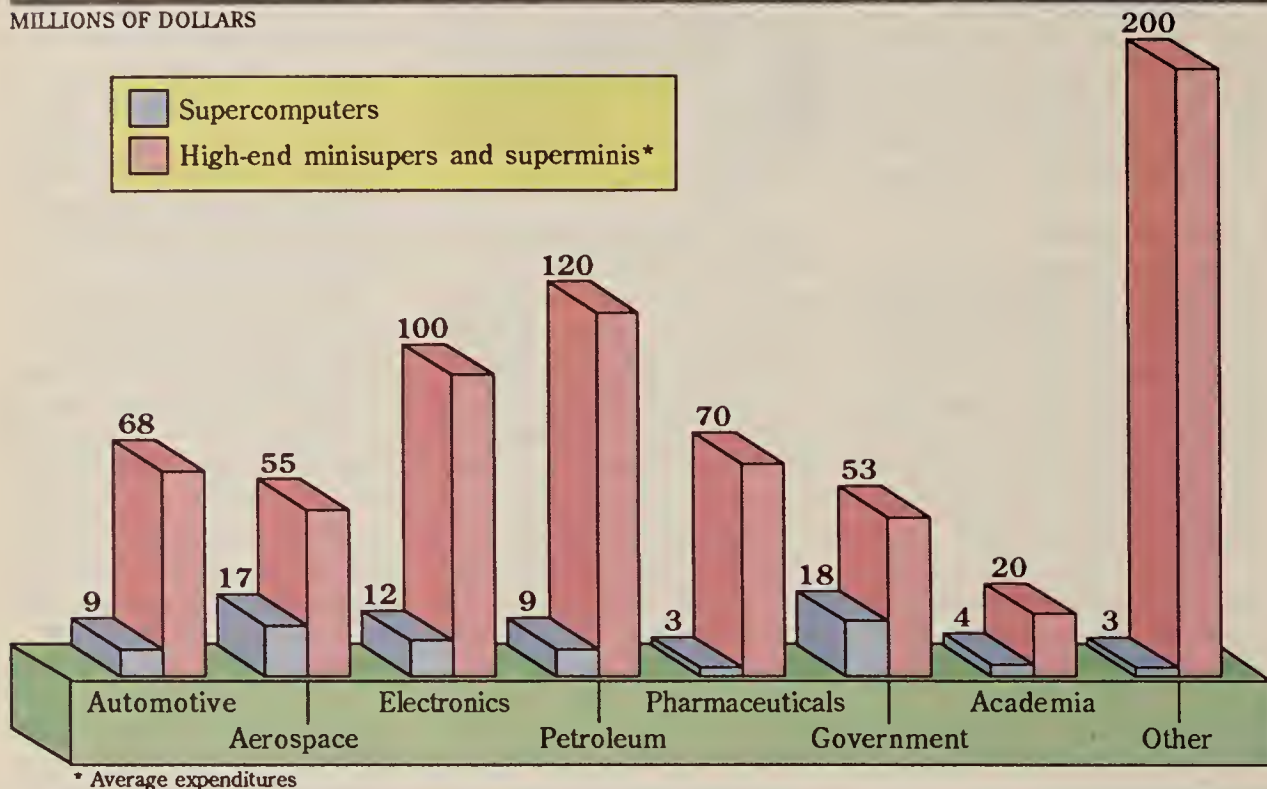
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TRENDS

Remote technical computing

1987 services expenditures favored minisupers, superminis

MILLIONS OF DOLLARS



Despite the increasing popularity of superminicomputers and the proliferation of new types of minisupercomputers in recent years, the use of supercomputers by technical computing service customers is on the rise. The reason is simple: The gain in performance for each dollar spent justifies the use of a supercomputer.

"Most companies gain a time advantage between 10-1 and 20-1 when using a supercomputer. However, the cost of using a super is not 10 to 20 times as great," said Charles Newton, president of Newton-Evans Research Co., a firm that studies the computing services market.

While the ever-increasing power of minisupers has been seen by many as cutting into the market share of the far more expensive supercomputers, their market erosion does not extend to the remote computing services market.

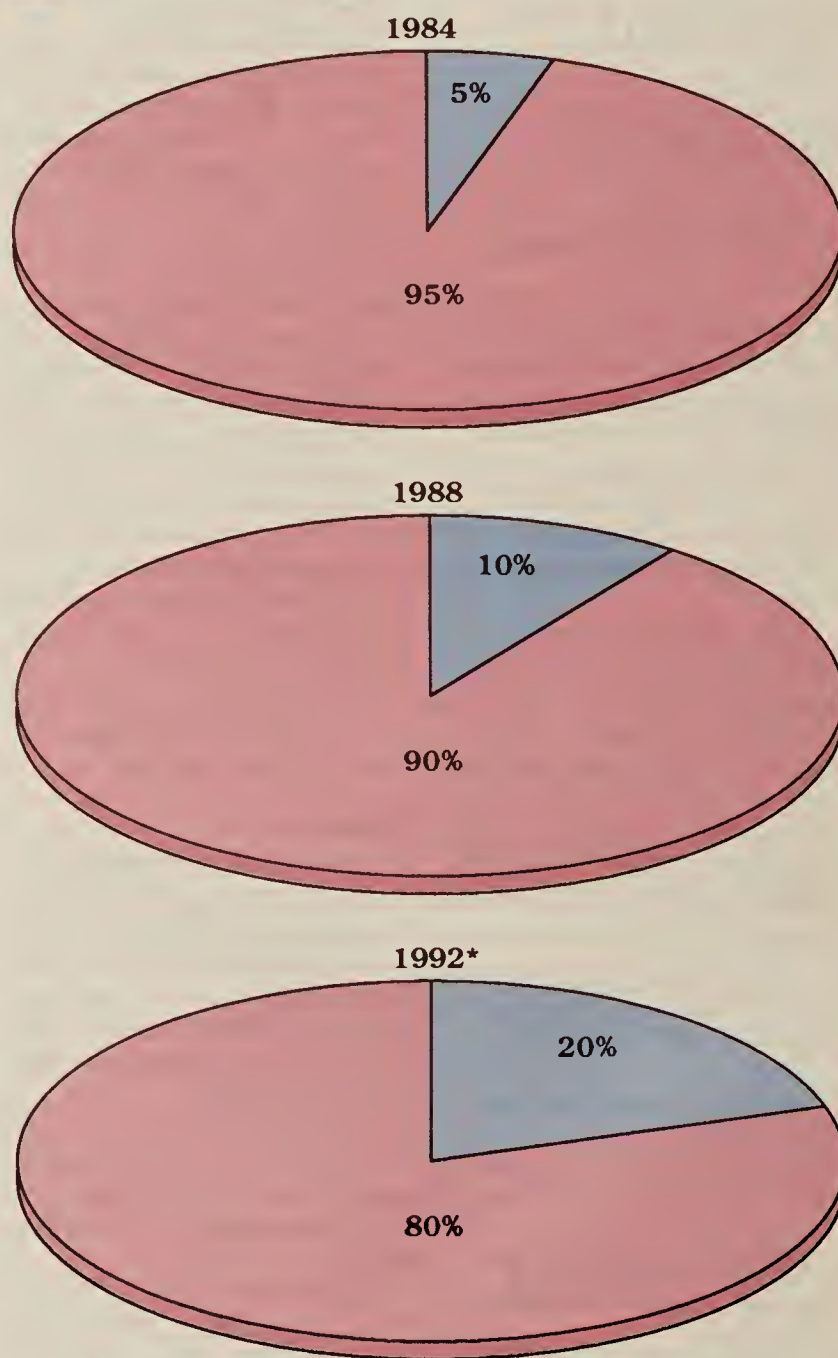
Newton said the use of supercomputer services has been increasing steadily for the past four years, from 5% of the market in 1984 to 10% today. He said he anticipates supercomputer use to increase at the same rate during the next four years, with supercomputers claiming 20% of the technical computing services market in 1992.

Not only will supercomputer use be spurred by the desire of users to save time, but users will increasingly want to run the specialized applications written only for supercomputers, Newton said.

STANLEY GIBSON

Supers gaining U.S. market share

● Supercomputers ● High-end minisupers and superminis



INFORMATION PROVIDED BY NEWTON-EVANS RESEARCH CO. CW CHARTS

INSIDE LINES

Curtain coming down. Scientific computer maker Celerity will discontinue operations this month barring a last-minute infusion of cash, the company announced last week. The San Diego-based vendor said it has found neither additional financing nor a buyer for the company. A maker of reduced instruction set computing-based superminis, Celerity was founded in 1983.

Want to race, PAL? Borland International is expected to crank out a compiler for its Paradox PAL programming language that is supposedly even faster than the firm's Intel 80386-specific version of the data base package. A Borland beta tester recently said he is anticipating delivery later this year.

Modern Jazz is aging. It was called Galaxy when announced last year. Then it was renamed Modern Jazz. Now it is late. The integrated spreadsheet Lotus has been writing to compete with Microsoft Excel on the Macintosh was supposed to ship last week. The latest date is early May.

C what you can do? Like Oracle Corp., the SAS Institute is discovering the benefit of the portable C programming language. SAS has rewritten its statistical analysis package in C and announced to the firm's 3,200 users group conference attendees in Orlando, Fla., last week that SAS has been moved under AT&T's Unix System V Interface Definition 2. It will be first implemented for Unix on Hewlett-Packard's HP 9000 minis. The C version has already been moved under IBM's PC-DOS and Microsoft's MS-DOS. Once the million-line system became available in C, only 10% needed to be rewritten for a new host, SAS said.

Wait a couple of months. "It's the biggest PBX price war I've seen in 15 years," said Fred Chanowski, president of Telecommunications Management Corp. IBM's Rolm division set things off with a price-slashing campaign to grab market share for its new 9751 private branch exchange (PBX). This forced AT&T and Northern Telecom to follow suit, and now PBX shoppers are paying up to 25% less than they did two or three months ago, Chanowski says. Voice/data and Integrated Services Digital Network interface boards for PBXs are also coming down; an IBM data port now costs about \$400.

Thanks for the memories. MCI will buy back IBM's 16% stake in the company over the next four years, MCI confirmed last week. The 1985 IBM investment, much ballyhooed at the time as a major Big Blue push into telecommunications, turned into one of the biggest nonstories in recent years. While MCI struggled with restoring its own financial momentum and with the absence of Chairman Bill McGowan after a 1987 heart attack, MCI received little attention in IBM's strategic plans, according to industry sources.

No more pillow talk. One source in the know tells us that IBM's nondisclosure agreements now state that the person signing the agreement can't publicly state that he has signed it. Forget you ever read this.

Where have we heard that line? "There's something our competition doesn't want you to see," was the wording on IBM's booth at Interface '88 last week. Every 4½ minutes, a new group was ushered up a staircase so that they could peer down onto IBM's state-of-the-art integrated office. Key elements: a System/36, a 9370 (but it was in the corner), a Rolm Cypress phone, a Rolm CBX and a PS/2 Model 80 acting as file server for an IBM Token-Ring. The big finish, spoken by an IBM saleswoman, was this: "It makes sense, and it's available now."

Although Cullinet didn't make its shuffle official until Thursday, the CW hot line was informed Monday that inquiries went out the previous week for a potential executive replacement. Kind of makes you wonder exactly what is meant by "personal reasons" when a resignation is delivered. News Editor Pete Bartolik handles those "personal calls" and can be reached at 800-343-6474 (or 617-879-0700).

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